



SUSANA MARTINEZ  
Governor  
JOHN A. SANCHEZ  
Lieutenant Governor

## NEW MEXICO ENVIRONMENT DEPARTMENT

Harold Runnels Building  
1190 South St. Francis Drive (87505)  
P.O. Box 5469, Santa Fe, NM 87502-5469  
Phone (505) 827-0187 Fax (505) 827-0160  
[www.nmenv.state.nm.us](http://www.nmenv.state.nm.us)



RYAN FLYNN  
Cabinet Secretary  
BUTCH TONGATE  
Deputy Secretary

### **Certified Mail - Return Receipt Requested**

November 24, 2014

Ms. Kimberly Davis-Lebak, Manager  
U.S. DOE National Nuclear Security Administration  
Los Alamos Site Office (NA-00-LA)  
3747 West Jemez Road  
Los Alamos, NM 87544

Ms. Alison Dories, Associate Director  
Environment, Safety, Health and  
Quality MS K491  
Los Alamos National Security, LLC  
P.O. Box 1663  
Los Alamos, NM 87545

**Re: Los Alamos National Laboratory, Minor, Individual Permit; SIC 9711; NPDES Compliance Evaluation Inspection; NM0030759; August 25-28, 2014 and September 12, 2014**

Dear Ms. Davis-Lebak:

Enclosed please find a copy of the report and check list for the referenced inspection that the New Mexico Environment Department (NMED) conducted at your facility on behalf of the U.S. Environmental Protection Agency (USEPA). This inspection report will be sent to the USEPA in Dallas for their review. These inspections are used by USEPA to determine compliance with the National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Introduction, treatment scheme, and problems noted during this inspection are discussed in the "Further Explanations" section of the inspection report.

You are encouraged to review the inspection report, required to correct any problems noted during the inspection, and advised to modify your operational and/or administrative procedures, as appropriate. If you have comments on or concerns with the basis for the findings in the NMED inspection report, please contact us (see the address below) in writing within 30 days from the date of this letter. Further, you are encouraged to notify in writing both the USEPA and NMED regarding modifications and compliance schedules at the addresses below:

Racquel Douglas  
US Environmental Protection Agency, Region VI  
Enforcement Branch (6EN-WM)  
1445 Ross Avenue  
Dallas, Texas 75202-2733

Bruce Yurdin  
New Mexico Environment Department  
Surface Water Quality Bureau  
Point Source Regulation Section  
P.O. Box 5469  
Santa Fe, New Mexico 87502

If you have any questions about this inspection report, please contact Sarah Holcomb at 505-827-2798 or at [sarah.holcomb@state.nm.us](mailto:sarah.holcomb@state.nm.us).

Sincerely,

*/s/ Bruce J. Yurdin*

Bruce J. Yurdin  
Program Manager  
Point Source Regulation Section  
Surface Water Quality Bureau

cc: Racquel Douglas, USEPA (6EN-AS), mailed CD  
Carol Peters-Wagnon, USEPA (6EN-WM), mailed CD  
Everett Spencer, USEPA (6EN-WM), mailed CD  
Brent Larsen, USEPA (6WQ-PP), mailed CD  
Gladys Gooden-Jackson, USEPA (6EN), mailed CD  
NMED District 2, Bob Italiano, mailed CD  
John Kieling, Bureau Chief, NMED Hazardous Waste Bureau, mailed CD  
Dave Cobrain, Program Manager, NMED Hazardous Waste Bureau, mailed CD  
Don Carlson, NMED DOE Oversight Bureau, mailed CD  
Courtney Perkins, NMED DOE Oversight Bureau  
Michael Brandt, Associate Director, LANS LLC, mailed CD  
David McInroy, LANS, LLC, mailed CD  
Steve Veenis, LANS, LLC, mailed CD  
David Rhodes, USDOE, mailed CD  
Karen Armijo, USDOE, mailed CD  
Gene Turner, USDOE, mailed CD  
Tony Grieggs, LANS, LLC, mailed CD  
Mike Saladen, LANS LLC, mailed CD  
Terrill Lemke, LANS LLC, mailed CD



Form Approved  
OMB No. 2040-0003  
Approval Expires 7-31-85

## NPDES Compliance Inspection Report

### Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Fac Type
1 [N] 2 [5] 3 [N] [M] [0] [0] [3] [0] [7] [5] [9]	11 12 [1] [4] [0] [8] [2] [8]	17 18 [C]	19 [S]	20 [2]	
Remarks					
[I] [N] [D] [I] [V] [I] [D] [U] [A] [L] [S] [T] [O] [R] [M] [W] [A] [T] [E] [R]					
Inspection Work Days	Facility Evaluation Rating	BI	QA	Reserved	
67 [ ] [ ] [ ] 69	70 [2]	71 [N]	72 [N]	73 [ ] [ ] [ ]	74 75 [ ] [ ] [ ] [ ] [ ] [ ] 80

### Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number) Los Alamos National Laboratory (LANL), Los Alamos County, New Mexico. LANL is jointly operated by the U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA), Los Alamos Site Office (LASO) and Los Alamos National Security, LLC (LANS).	Entry Time /Date 0900 hours / 8-25-2014	Permit Effective Date 11-1-2010
	Exit Time/Date 1630 hours / 9-12-2014	Permit Expiration Date 3-31-2014
Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s) Kate Lynnes, LANS Jeff Walterscheid, LANS Armand Groffman, LANS Thaddeus Kostrubala, LANS	Dave McInroy, LANS EP Karen Armijo, EPO/CONTR-JGMS, NNSA/DOE Joe English, LANS	Other Facility Data SIC 9711, 9661, 9611
Name, Address of Responsible Official/Title/Phone and Fax Number Ms. Kimberly Davis-Lebak, Manager U.S. DOE National Nuclear Security Administration Los Alamos Site Office (NA-00-LA) 3747 West Jemez Road Los Alamos, NM 87544	Ms. Alison Dories, Associate Director Environment, Safety, Health and Quality MS K491 Los Alamos National Security, LLC P.O. Box 1663, Los Alamos, NM 87545	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

### Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

U	Permit	N	Flow Measurement	M	Operations & Maintenance	N	CSO/SSO
U	Records/Reports	U	Self-Monitoring Program	N	Sludge Handling/Disposal	N	Pollution Prevention
M	Facility Site Review	N	Compliance Schedules	N	Pretreatment	N	Multimedia
U	Effluent/Receiving Waters	M	Laboratory	U	Storm Water	N	Other:

### Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

- The NMED Inspectors arrived and conducted an entrance interview with LANS, LLC and U.S. DOE personnel on August 25, 2014 at the LANL Pueblo Complex at 9:00am. Introductions were made, credentials were presented and the purpose of the inspection was discussed. Pre-selected sites were arranged by LANS, LLC personnel into a site tour based on site access requirements and were visited over the course of the next three and a half days. Two sites could not be accessed due to scheduling during this first week; consequently a second site visit was arranged to visit two additional sites on September 12, 2014. An exit interview was conducted with both LANS, LLC and U.S. DOE personnel on August 28, 2014 at the LANL Pueblo Complex in which preliminary findings of the inspection were discussed.
- Please see the report for further information.

Name(s) and Signature(s) of Inspector(s) Sarah Holcomb /s/ Sarah Holcomb	Agency/Office/Telephone/Fax 505-827-2798	Date 11-24-2014
Signature of Management QA Reviewer Bruce Yurdin /s/ Bruce J. Yurdin	Agency/Office/Phone and Fax Numbers 505-827-2795	Date 11-24-2014

LOS ALAMOS NATIONAL LABORATORY – INDIVIDUAL STORMWATER PERMIT	PERMIT NO. NM0030759
SECTION A - PERMIT VERIFICATION	
PERMIT SATISFACTORILY ADDRESSES OBSERVATIONS <input type="checkbox"/> S <input type="checkbox"/> M <input checked="" type="checkbox"/> U <input type="checkbox"/> NA (FURTHER EXPLANATION ATTACHED <u>YES</u> ) DETAILS: Permit is administratively continued. Site monitoring areas do not appear to be representative of discharges from these Sites.	
1. CORRECT NAME AND MAILING ADDRESS OF PERMITTEE	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
2. NOTIFICATION GIVEN TO EPA/STATE OF NEW DIFFERENT OR INCREASED DISCHARGES	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
3. NUMBER AND LOCATION OF DISCHARGE POINTS AS DESCRIBED IN PERMIT	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
4. ALL DISCHARGES ARE PERMITTED	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA
SECTION B - RECORDKEEPING AND REPORTING EVALUATION	
RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT. <input type="checkbox"/> S <input type="checkbox"/> M <input checked="" type="checkbox"/> U <input type="checkbox"/> NA (FURTHER EXPLANATION ATTACHED <u>YES</u> ) DETAILS:	
1. ANALYTICAL RESULTS CONSISTENT WITH DATA REPORTED ON DMRs.	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
2. SAMPLING AND ANALYSES DATA ADEQUATE AND INCLUDE.	<input checked="" type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA
a) DATES, TIME(S) AND LOCATION(S) OF SAMPLING	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
b) NAME OF INDIVIDUAL PERFORMING SAMPLING	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
c) ANALYTICAL METHODS AND TECHNIQUES.	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
d) RESULTS OF ANALYSES AND CALIBRATIONS.	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
e) DATES AND TIMES OF ANALYSES.	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
f) NAME OF PERSON(S) PERFORMING ANALYSES.	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
3. LABORATORY EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS ADEQUATE.	<input checked="" type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA
4. PLANT RECORDS INCLUDE SCHEDULES, DATES OF EQUIPMENT MAINTENANCE AND REPAIR.	<input checked="" type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA
5. EFFLUENT LOADINGS CALCULATED USING DAILY EFFLUENT FLOW AND DAILY ANALYTICAL DATA.	<input type="checkbox"/> Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA
SECTION C - OPERATIONS AND MAINTENANCE	
TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED. <input type="checkbox"/> S <input checked="" type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA (FURTHER EXPLANATION ATTACHED <u>YES</u> ) DETAILS:	
1. TREATMENT UNITS PROPERLY OPERATED.	<input checked="" type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA
2. TREATMENT UNITS PROPERLY MAINTAINED.	<input checked="" type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA
3. STANDBY POWER OR OTHER EQUIVALENT PROVIDED.	<input type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input checked="" type="checkbox"/> NA
4. ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE.	<input type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input checked="" type="checkbox"/> NA
5. ALL NEEDED TREATMENT UNITS IN SERVICE Additional/Enhanced Control Measures needed for 78 SMAs.	<input type="checkbox"/> S <input checked="" type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA
6. ADEQUATE NUMBER OF QUALIFIED OPERATORS PROVIDED.	<input type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input checked="" type="checkbox"/> NA
7. SPARE PARTS AND SUPPLIES INVENTORY MAINTAINED.	<input checked="" type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA
8. OPERATION AND MAINTENANCE MANUAL AVAILABLE. STANDARD OPERATING PROCEDURES AND SCHEDULES ESTABLISHED. PROCEDURES FOR EMERGENCY TREATMENT CONTROL ESTABLISHED.	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA <input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA

LOS ALAMOS NATIONAL LABORATORY – INDIVIDUAL STORMWATER PERMIT		PERMIT NO. NM0030759			
SECTION C - OPERATIONS AND MAINTENANCE (CONT'D)					
9. HAVE BYPASSES/OVERFLOWS OCCURRED AT THE PLANT OR IN THE COLLECTION SYSTEM IN THE LAST YEAR?		<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA	
IF SO, HAS THE REGULATORY AGENCY BEEN NOTIFIED?		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
HAS CORRECTIVE ACTION BEEN TAKEN TO PREVENT ADDITIONAL BYPASSES/OVERFLOWS?		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
10.HAVE ANY HYDRAULIC OVERLOADS OCCURRED AT THE TREATMENT PLANT?		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
IF SO, DID PERMIT VIOLATIONS OCCUR AS A RESULT?		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
SECTION D - SELF-MONITORING					
PERMITTEE SELF-MONITORING MEETS PERMIT REQUIREMENTS. DETAILS:		<input type="checkbox"/> S	<input type="checkbox"/> M	<input checked="" type="checkbox"/> U	<input type="checkbox"/> NA (FURTHER EXPLANATION ATTACHED <u>YES</u> ).
1. SAMPLES TAKEN AT SITE(S) SPECIFIED IN PERMIT.		<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA	
2. LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES.		<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA	
3. FLOW PROPORTIONED SAMPLES OBTAINED WHEN REQUIRED BY PERMIT.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
4. SAMPLING AND ANALYSES COMPLETED ON PARAMETERS SPECIFIED IN PERMIT.		<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA	
5. SAMPLING AND ANALYSES PERFORMED AT FREQUENCY SPECIFIED IN PERMIT.		<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA	
6. SAMPLE COLLECTION PROCEDURES ADEQUATE		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA	
a) SAMPLES REFRIGERATED DURING COMPOSITING.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
b) PROPER PRESERVATION TECHNIQUES USED.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA	
c) CONTAINERS AND SAMPLE HOLDING TIMES CONFORM TO 40 CFR 136.3.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA	
7. IF MONITORING AND ANALYSES ARE PERFORMED MORE OFTEN THAN REQUIRED BY PERMIT, ARE THE RESULTS REPORTED IN PERMITTEE'S SELF-MONITORING REPORT?		<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> NA	
SECTION E - FLOW MEASUREMENT					
PERMITTEE FLOW MEASUREMENT MEETS PERMIT REQUIREMENTS. DETAILS: However, events that trigger monitoring events (0.25 inches within 30 minutes) are recorded by LANS/DOE's rain gage system.		<input type="checkbox"/> S	<input type="checkbox"/> M	<input type="checkbox"/> U	<input checked="" type="checkbox"/> NA (FURTHER EXPLANATION ATTACHED <u>NO</u> )
1. PRIMARY FLOW MEASUREMENT DEVICE PROPERLY INSTALLED AND MAINTAINED. TYPE OF DEVICE		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
2. FLOW MEASURED AT EACH OUTFALL AS REQUIRED.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
3. SECONDARY INSTRUMENTS (TOTALIZERS, RECORDERS, ETC.) PROPERLY OPERATED AND MAINTAINED.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
4. CALIBRATION FREQUENCY ADEQUATE.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
RECORDS MAINTAINED OF CALIBRATION PROCEDURES.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
CALIBRATION CHECKS DONE TO ASSURE CONTINUED COMPLIANCE.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
5. FLOW ENTERING DEVICE WELL DISTRIBUTED ACROSS THE CHANNEL AND FREE OF TURBULENCE.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
6. HEAD MEASURED AT PROPER LOCATION.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
7. FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGE OF FLOW RATES.		<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> NA	
SECTION F – LABORATORY					
PERMITTEE LABORATORY PROCEDURES MEET PERMIT REQUIREMENTS. DETAILS:		<input type="checkbox"/> S	<input checked="" type="checkbox"/> M	<input type="checkbox"/> U	<input type="checkbox"/> NA (FURTHER EXPLANATION ATTACHED <u>YES</u> )
1. EPA APPROVED ANALYTICAL PROCEDURES USED (40 CFR 136.3 FOR LIQUIDS, 503.8(b) FOR SLUDGES)		<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N	<input type="checkbox"/> NA	

LOS ALAMOS NATIONAL LABORATORY – INDIVIDUAL STORMWATER PERMIT						PERMIT NO. NM0030759	
SECTION F - LABORATORY (CONT'D)							
2. IF ALTERNATIVE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED						<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> NA	
3. SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT.						<input checked="" type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA	
4. QUALITY CONTROL PROCEDURES ADEQUATE.						<input checked="" type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA	
5. DUPLICATE SAMPLES ARE ANALYZED. <u>100</u> % OF THE TIME.						<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
6. SPIKED SAMPLES ARE ANALYZED. <u>100</u> % OF THE TIME.						<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
7. COMMERCIAL LABORATORY USED.						<input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
LAB NAME <u>GEL Laboratories</u>							
LAB ADDRESS <u>2040 Savage Rd., Charleston, SC 29407</u>							
PARAMETERS PERFORMED <u>Metals, Cn, SVOCs</u>							
SECTION G - EFFLUENT/RECEIVING WATERS OBSERVATIONS. <input type="checkbox"/> S <input type="checkbox"/> M <input checked="" type="checkbox"/> U <input type="checkbox"/> NA (FURTHER EXPLANATION ATTACHED <u>YES</u> ).							
OUTFALL NO.	OIL SHEEN	GREASE	TURBIDITY	VISIBLE FOAM	FLOAT SOL.	COLOR	OTHER
Observed SMAs	No discharge	No discharge	No discharge	No discharge	No discharge	No discharge	No discharge
RECEIVING WATER OBSERVATIONS <u>No flow was observed at the time of this inspection.</u>							
SECTION H - SLUDGE DISPOSAL							
SLUDGE DISPOSAL MEETS PERMIT REQUIREMENTS. DETAILS:				<input type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input checked="" type="checkbox"/> NA (FURTHER EXPLANATION ATTACHED <u>NO</u> ).			
1. SLUDGE MANAGEMENT ADEQUATE TO MAINTAIN EFFLUENT QUALITY.						<input type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA	
2. SLUDGE RECORDS MAINTAINED AS REQUIRED BY 40 CFR 503.						<input type="checkbox"/> S <input type="checkbox"/> M <input type="checkbox"/> U <input type="checkbox"/> NA	
3. FOR LAND APPLIED SLUDGE, TYPE OF LAND APPLIED TO:						<u>(e.g., FOREST, AGRICULTURAL, PUBLIC CONTACT SITE)</u>	
SECTION I - SAMPLING INSPECTION PROCEDURES (FURTHER EXPLANATION ATTACHED <u>  </u> ).							
1. SAMPLES OBTAINED THIS INSPECTION.						<input type="checkbox"/> Y <input type="checkbox"/> N <input checked="" type="checkbox"/> NA	
2. TYPE OF SAMPLE OBTAINED GRAB <u>                    </u> COMPOSITE SAMPLE <u>  </u> METHOD <u>                    </u> FREQUENCY <u>                    </u>							
3. SAMPLES PRESERVED.						<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
4. FLOW PROPORTIONED SAMPLES OBTAINED.						<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
5. SAMPLE OBTAINED FROM FACILITY'S SAMPLING DEVICE.						<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
6. SAMPLE REPRESENTATIVE OF VOLUME AND MATURE OF DISCHARGE.						<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
7. SAMPLE SPLIT WITH PERMITTEE.						<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
8. CHAIN-OF-CUSTODY PROCEDURES EMPLOYED.						<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	
9. SAMPLES COLLECTED IN ACCORDANCE WITH PERMIT.						<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA	

Los Alamos National Laboratory  
Individual Stormwater NPDES Permit No. NM0030759  
Compliance Evaluation Inspection  
August 25-28 and September 12, 2014

**Acronym Listing**

ACR	Alternative Compliance Request
AOC	Area of Concern
ATAL	Average Target Action Level
BMP	Best Management Practice
CEI	Compliance Evaluation Inspection
COC	Certificate of Completion
CWA	Clean Water Act
DOE-OB	Department of Energy-Oversight Bureau
ECM	Enhanced Control Monitoring
EPA	Environmental Protection Agency
HE	High Explosives
HWB	Hazardous Waste Bureau
IP	Individual Permit
ISCO	automated stormwater sampler
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security, LLC
LASO	Los Alamos Site Office
MDL	Minimum Detection Limit
MQL	Minimum Quantification Limit
MTAL	Maximum Target Action Level
NMAC	New Mexico Annotated Code
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NPDES	National Pollutant Discharge Elimination System
PCBs	Polychlorinated Biphenyls
RCRA	Resource Conservation and Recovery Act
SDPPP	Site Discharge Pollution Prevention Plan
SMA	Site Monitoring Area
SSL	Soil Screening Level
SWMU	Solid Waste Management Unit
SWQB	Surface Water Quality Bureau
TAL	Target Action Level
WQCC	Water Quality Control Commission

Los Alamos National Laboratory  
Individual Stormwater NPDES Permit No. NM0030759  
Compliance Evaluation Inspection  
August 25-28 and September 12, 2014

## **Introduction**

A Compliance Evaluation Inspection (CEI) was conducted at the Los Alamos National Laboratory (LANL) in Los Alamos County, New Mexico, starting August 25, 2014 thru August 28, 2014 with a follow up site visit on September 12, 2014 by Sarah Holcomb, accompanied by Bruce Yurdin and Daniel Valenta, of the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB), Point Source Regulation Section (PSRS). For storm water discharges, the facility is classified as a minor federal facility under the federal Clean Water Act (CWA), Section 402 National Pollutant Discharge Elimination System (NPDES) permit program. U.S. Department of Energy (DOE), National Nuclear Security Administration (NNSA), Los Alamos Site Office (LASO) and Los Alamos National Security, LLC (LANS) are jointly authorized to discharge storm water associated with historic industrial activities from specified solid waste management units (SWMUs) and areas of concern (AOCs) or Sites identified in Appendix A of NPDES permit number NM0030759.

Stormwater discharges are to tributaries or main channels of Mortendad Canyon, Canada del Buey, Los Alamos Canyon, DP Canyon, Sandia Canyon, Ten Site Canyon, Canyon de Valle, Water Canyon, Ancho Canyon, Bayo Canyon, Chaquehui Canyon, Fence Canyon, Pajarito Canyon, Two-Mile Canyon, Three-Mile Canyon, Potrillo Canyon, Pueblo Canyon and Rendija Canyon in Segments 20.6.4.97, 20.6.4.98, 20.6.4.126 and 20.6.4.128 NMAC (*State of New Mexico Standards for Interstate and Intrastate Surface Waters, 20.6.4 New Mexico Administrative Code(NMAC)*) of the Rio Grande Basin.

Upon arrival at Technical Area (TA) 59 at approximately 0900 hours on August 25, 2014, the inspector made introductions, presented credentials and briefly discussed the purpose of the inspection during an entrance interview with representatives of LANS and USDOE. Personnel present represented LANS, LLC, U.S. DOE/NNSA/LASO, and NMED DOE Oversight Bureau (participating as observers). The inspectors, Mr. Jeff Walterscheid (LANS Monitoring Team Lead), Tadz Kostrubala (Planning and Reporting Team Lead), Joe English (LANS, LLC), and Kate Lynnes, and Katie Higgins (both of the Planning and Reporting Team), also of ENV-RCRA, toured selected site monitoring areas (SMAs) on August 25 through August 28, 2014. Karen Armijo, Environmental Projects Office, LASO, DOE, and Courtney Perkins and Don Carlson, NMED DOE Oversight Bureau were present during some field tours. An exit interview meeting with LANS and USDOE staff was conducted on August 28, 2014 at approximately 1550 hours. The inspectors left the facility at approximately 1630 hours on August 28, 2014. Additional findings resulting from records review were discussed with the Permittees on November 5, 2014.

In the follow up exit interview meeting, representatives from LANS, LLC and USDOE were present, including Steve Veenis, Kate Lynnes, Mike Saladen, Terrill Lemke, and Jeff Walterscheid (all from LANS, LLC), Karen Armijo of USDOE, as well as James Hogan, Bruce Yurdin and Sarah Holcomb of NMED SWQB. Prior to the meeting, LANS/DOE was provided a draft copy of the Executive Summary. The following items were specifically discussed:

- The use of the strategy stating that constituents were not present above 10% of residential soil screening values and therefore would not be present in stormwater in the permit reapplication materials.
- NMED stated as shown in the Executive Summary that the SDPPP should be one comprehensive document due to concerns about the deletion of relevant information from version to version. LANS staff stated that their interpretation of the permit was that annual SDPPP updates were only to concern events that had occurred during the previous year.
- LANS stated that the reason no corrective action had occurred at 2M-SMA-1.67 and PJ-SMA-16 was that while most of the baseline data showed no TAL exceedances, hold times were exceeded for the HE constituent required in the pollutant suites for those sites. The Permittees stated they are waiting for another sample at 2M-SMA-1.67 and have collected a second sample at PJ-SMA-16 that shows no TAL exceedance for HE.
- LANS staff indicated that small moves of sampler locations have been occurring as needed, and as documented in the annual reports. LANS staff also stated that large moves, which by their interpretation would require monitoring “new water”, were not made due to the requirement for a permit modification.
- Monitoring for gross alpha and the requirements to do adjustment monitoring and calculations for certain Sites was discussed.



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- NMED discussed concerns regarding non-reporting of soil sampling data related to the affected area of the sites monitored under this permit, as well as concerns regarding the delay of implementation of corrective action/enhanced controls at sites that exhibited a TAL exceedance in baseline monitoring.

At LANS/DOE's request during the meeting, NMED provided the EPA contact information concerning adjusted gross alpha and exemptions under the Atomic Energy Act. Following the meeting, LANS/DOE provided information on two Sites that had not received enhanced controls after TAL exceedances were observed. NMED made the following revisions to the inspection report as a result of this meeting: corrected small typos and provided clarification on one issue in the Executive Summary.

The permit covers 405 Sites/Areas of Concern (AOCs)/Solid Waste Management Units (SWMUs) in 250 Site Monitoring Areas (SMAs). The permit describes how the SMAs were organized according to location of the SWMUs and the ability to monitor multiple Sites representatively.

The NMED performs a certain number of CEIs each year for the U.S. Environmental Protection Agency (USEPA), Region VI. The purpose of this inspection is to provide the USEPA with information to evaluate the Permittee's compliance with the NPDES permit. This inspection report is based on information provided by the Permittee's representatives, observations made by the NMED inspectors, and records and reports kept by the Permittee and NMED, including LANL on-line public involvement documents available at <http://www.lanl.gov/environment/h2o/ip.shtml?1>.

In 1992, EPA Region 6 issued a Notice of Non-Compliance to LANL to address violations of RCRA and disposal of mixed wastes. The EPA and LANL entered into negotiations to develop a Federal Facilities Compliance Agreement (FFCA) to address the concerns at the Laboratory. The agreement was finalized in 1995 and required LANL to collect various environmental data to assess the effectiveness of their Site Treatment Plan, required by the order. Solid Waste Management Units (SWMUs) created from the historic disposal of waste in the canyons on the Pajarito Plateau were previously regulated under the EPA's Multi Sector General Permit (MSGP) under Sector K for purposes of the Clean Water Act, but under negotiations related to the NMED Hazardous Waste Bureau's Consent Order (finalized in 2005), the US DOE and LANS, LLC were required to obtain coverage under an individual permit for the stormwater discharges from these SWMUs and AOCs to better manage and characterize the influence these wastes have on storm water discharges from the Lab. Under the Clean Water Act, discharges are regulated at "areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater." (40 CFR Part 122.26(b)(14)) The Permittees have progressed through the first cycle of NPDES permitting. The current permit expired on March 31, 2014. The Permittees submitted their permit reapplication package to EPA and NMED on March 26, 2014. Normally, permit applications for renewals are required at least 180 days in advance of permit expiration; however, the Permittees received an extension from EPA.

### **Summary of Individual Permit Conditions**

The Sites regulated under this permit are organized in a number of different ways. There are seven distinct watersheds on the Pajarito Plateau that are organized into five editions of the Site Discharge Pollution Prevention Plans (SDPPPs). Sites (specific SWMUs/AOCs) are organized into Site Monitoring Areas (SMAs). Depending on the characteristics of the site, a SWMU could potentially be included in more than one SMA – AOC 21-021 is a good example of this as it related to radioactive emissions from stacks and covered a large area. The SMAs are intended to group similar Sites for purposes of monitoring.

Sites were selected for inclusion in this permit from the total list of Sites in the NMED Hazardous Waste Bureau's RCRA Consent Order (issued in 2005) based on historical information and environmental data available at the time of the first permit application in 2008. The criteria for inclusion were as follows: (excerpted from the LANS/DOE Permit Reapplication, March 2014)

1. The SWMU/AOC is exposed to stormwater (e.g., not capped or subsurface)

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2. The SWMU/AOC contains “significant industrial materials” (e.g., has contamination in place), and
3. The SWMU/AOC potentially impacts surface water.

Under USEPA’s Individual Stormwater Permit for LANL, *Permittees are required to implement site-specific control measures (including best management practices) to address the non-numeric technology-based effluent limits contained in the Permit, followed by confirmation monitoring against New Mexico water-quality criteria equivalent target action levels to determine the effectiveness of the site-specific measures.”*

Control measures include erosion and sedimentation controls; management of run-on and run-off; employee training; and other controls. Permittees’ representatives indicate a desire to move toward green infrastructure approaches as they are able for some Sites. The permit lists the installed baseline control measures for each of the 250 permitted features or SMAs. The permit includes conditions for confirmation monitoring requirements and sampling locations (latitude and longitude). Monitoring at all SMAs includes radioactivity, cyanide and metals. Some SMAs and Sites have additional monitoring requirements for polychlorinated biphenyls (PCBs), high explosives (HE), semi-volatile compounds, and/or pesticides. This permit lists the applicable target action levels (TALs) for pollutants – maximum and average (MTAL and ATAL). The applicable TALs are not themselves effluent limitations, but are benchmarks to determine the effectiveness of control measures implemented to meet the non-numeric technology-based effluent limitations.

If any validated sample analytical result for a specific pollutant of concern at a particular SMA is greater than the applicable TAL (or applicable Minimum Quantification Level (MQL), whichever is greater), then corrective action (visual inspection, reevaluation of existing control measures, and initiation of corrective action as soon as practicable) is required. Confirmation samples are required following installation of corrective action enhanced controls. The permit includes conditions of completion of corrective action, alternative compliance, and deadlines for the 63 high priority Sites assigned in 33 SMAs. High priority Sites were identified based on PCB levels present at Sites. The rest are moderate priority Sites. Permittees must certify completion of corrective action for all high priority Sites within three (3) years and for all moderate priority Sites within five (5) years of the effective date of the permit, or such other time period pursuant to the permit.

The permit requires a Sites Discharge Pollution Prevention Plan (SDPPP) and includes conditions for documentation, identification of the SDPPP team, identification of the receiving waters and wetlands, summary of potential pollutant sources, description of control measures, schedules for control measures installation, monitoring and inspection procedures, signature requirements and other documentation. Conditions for inspection requirements (erosion inspection and reevaluation, post-storm inspection and reports) are also provided in the permit. Reporting requirements include compliance status reports, including discharge monitoring reports, with reporting periods from January 1<sup>st</sup> to December 31<sup>st</sup>, and annual reports. Other conditions include, but are not limited to, construction activity associated with Sites remediation; deletion of Sites; watershed protection approach; and public involvement (website, e-mail notification, and public meetings). The permit also provides requirements for 24-hour oral reporting, composite sampling, data averaging requirements and permit reopener conditions. Standard conditions for NPDES permits are also included in the permit.

#### **Baseline Controls – Site Boundary and SMA Sampler Location and Corrective Action Status**

Baseline controls were certified to be complete for each SMA at the time of this inspection. The SDPPP was prepared in five volumes based on watershed. Additional or “augmented” controls were installed for some Sites or SMAs. On-site representatives use the term “augmented” to indicate controls that were installed following installation of baseline controls, but not as a requirement of TAL exceedances and corrective action. The facility has approximately 175 Teledyne ISCO samplers and previously used single stage samplers but as of this inspection did not appear to be using them. LANS/DOE staff indicated that they have not made significant changes to the sampler locations since the previous inspection.

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As of December 31, 2013, Sites status is as follows:

- Of the 250 SMAs, only 140 SMAs have been sampled (110 SMAs not sampled).
- TAL exceedances occurred at 131 of the 140 sampled SMAs. Pollutants exceeding TALs included adjusted gross alpha, Zinc, Aluminum, PCBs, Mercury, Copper, Selenium, Radium 226 + 228, Lead, weak acid dissociable Cyanide, Arsenic, Silver, and RDX.
- 78 SMAs were in need of enhanced control installation.
- 83 Sites have completed enhanced control monitoring. Of those 83 Sites, 19 Sites have reinitiated corrective action because of TAL exceedances.
- Baseline confirmation complete has been certified by LANS/DOE for 13 Sites (10 SMAs) with no TAL exceedances.
- Corrective action has been initiated at 245 Sites (129 SMAs). With the exception of 2M-SMA-1.67 and PJ-SMA-16.

According to the permit reapplication materials, certification of corrective action has been completed at 27 Sites (17 SMAs) as of December 31, 2013. Most of these (25) were submitted based on the receipt of a Certificate of Completion (CoC) under the RCRA Consent Order. The others were submitted based on elimination of exposure to pollutants (2 Sites). As of the writing of this inspection report, three alternative compliance requests have been submitted to EPA for S-SMA-0.25, S-SMA-2 and M-SMA-7.9. All three of these Sites were evaluated during this inspection and are discussed in detail in the permit verification section of this inspection report.

Appendix A gives a concise overview of the status of each Site, including corrective action status, receipt of a Certificate of Completion from the NMED Hazardous Waste Bureau, and notes on TAL exceedances for each Site.

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Executive Summary:

Section A – Permit Verification – Unsatisfactory

- Of the 250 SMAs, only 140 SMAs have been sampled (110 SMAs not sampled).
- Baseline confirmation complete with no TAL exceedances has been certified by LANS/DOE for 13 Sites (10 SMAs). However, it appears that those Sites may not have been sampled representatively (refer to Section D).
- Three Alternative Compliance Requests – rationale included urban background pollution influencing results from these Sites. Soil sampling shows that stormwater monitoring done to date may not be representative of actual data from the Site (no run-on monitoring, entire affected area is not being monitored, etc.)
- LANS/DOE used metals, radioactive materials and PCB background reports published after the effective date of the permit and unapproved by EPA for this specific use to justify assertions that some Sites are not discharging Site-related pollution.
- Pollutants of concern discovered due to soil sampling have not been sampled in stormwater. Soil sampling largely occurred in 2009-2010 and has not influenced decision making under the NPDES permit.

Section B – Recordkeeping & Reporting – Unsatisfactory

- Some language was deleted from SDPPP revisions that would be useful in determining potential pollutants at a Site.
- Additional pollutant information included in the Permittees' reapplication materials should have been updated in the annual reports.
- Some pertinent Site features were left off of the Site maps (e.g., storm drain at LA-SMA-5.02, flow arrows on numerous maps, soil sampling data).
- Soil sampling should have influenced additional pollutant sampling in stormwater and the location of the SMA sampler.

Section C – Operation and Maintenance – Marginal

- The on-the-ground Site-specific BMPs that were observed during this inspection appeared to be well maintained and operational.
- 78 SMAs require enhanced control installation.
- 83 Sites have completed enhanced control monitoring. Of those 83 Sites, 19 Sites have reinitiated corrective action because of TAL exceedances.
- Corrective action has been initiated at 245 Sites (129 SMAs) with the exception of 2M-SMA-1.67 and PJ-SMA-16. However, it is unclear what "corrective action initiated" means – many Sites have not yet seen enhanced control installations. There appears to be a delay of implementation of corrective action after a baseline sample is collected that exhibits TAL exceedances.

Section D – Self Monitoring – Unsatisfactory

- Soil sampling data provided by LANS/DOE during the inspection for each Site showed that many pollutants detected in the soil were not being sampled in storm water. LANS/DOE staff did not update the SDPPPs to reflect new information gained through soil sampling. Additional data collected by NMED DOE Oversight Bureau also confirms this as well as the lack of representativeness of LANL sampling locations at certain Sites.
- For some Sites, individual Site monitoring is more appropriate to assess pollutants leaving the Site in storm water. Individual Site monitoring approaches are also needed when there is a large influence from run-on or current industrial sources (i.e. actively discharging outfalls.)
- Construction will trigger the need to restart monitoring requirements at S-SMA-2 and CDV-SMA-1.7.

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- Some sampler locations were observed during the Site visits that inaccurately represent the Sites. In some cases, a small move would have fixed the issue, but LANS/DOE staff indicated that they interpreted this would require a major modification of the permit, and so elected not to make minor relocations. Most samplers did not reflect additional contaminated affected area identified by soil sampling.
- There are some issues with representativeness of TALs/MQLs as established in the permit, specifically for benzo(a)pyrene and hexachlorobenzene – MQLs are substantially above WQCC-established water quality standards.
- Only one analytical package for one SMA was reviewed under this inspection, but that sampling event illustrates issues with timely sample collection and the exceedance of holding times for metals and SVOCs. According to information provided at the exit interview meeting on November 5, it appears that hold time compliance has improved since 2011.
- Permittees have not been monitoring for adjusted gross alpha, but instead evaluated total gross alpha because of the cost/benefit analysis, which is included in this inspection report.

Section F – Laboratory – Marginal

- Permittees' contract lab is not using a 40 CFR Part 136 approved method for analysis of Ra-226.

Section G – Effluent/Receiving Waters – Unsatisfactory

- TAL exceedances occurred at 131 of the 140 sampled SMAs. Pollutants exceeding TALs included adjusted gross alpha, Zinc, Aluminum, PCBs, Mercury, Copper, Selenium, Radium 226 + 228, Lead, weak acid dissociable Cyanide, Arsenic, Silver, and RDX.
- Corrective action delay at some Sites results in pollution migration from the affected area closer to the affected waterbodies on the Pajarito Plateau.

Other Concerns

- LANS/DOE has turned off samplers at some Sites that have obtained a Certificate of Completion (CoCs) under the Consent Order, but still technically need to collect an Enhanced Monitoring Control confirmation sample. Many of the CoCs obtained from NMED Hazardous Waste Bureau indicate that the Permittees still need to continue monitoring for storm water pollutants.

## **Findings/Further Explanations**

Note: The sections are arranged according to the format of the enclosed EPA Inspection Checklist (Form 3560-3), rather than being ranked in order of importance.

### **Section A – Permit Verification – Overall Rating of Unsatisfactory**

#### **Permit Requirements** for Permit Verification

40 CFR Part 122.26(b)(12) states:

*Significant materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.*

40 CFR Part 122.26(b)(14) states:

*Storm water discharge associated with industrial activity means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under this part 122. For the categories of industries identified in this section, the term includes, but is not limited to... areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities listed in paragraphs (b)(14)(i) through (xi) of this section) include those facilities designated under the provisions of paragraph (a)(1)(v) of this section.*

The permit states in Part I.D.2:

**Sampling Locations:** *All samples taken for purposes of confirmation monitoring shall be taken in compliance with the monitoring requirements specified below at SMAs specified in Appendix A to the permit. Instead of monitoring at each individual Site, the Permittees may, when appropriate based on drainage patterns for the affected Sites, monitor two or more Sites in conjunction at an associated SMA, so long as the SMA and all associated Sites are identified in Appendix A to the Permit. SMA locations are based on reasonable site accessibility for sampling purposes and the Permittees' best judgment to ensure that samples taken at a particular point will be representative of discharges from Sites in the drainage area. The Permit may be modified, in accordance with the provisions of 40 C.F.R. § 122.62, to relocate a SMA based on a determination that the SMA is no longer representative of the drainage area for a Site or Sites, provided sufficient technical justification for the relocation is included with Permittees' request for permit modification. Permittees may move a sampler to make minor adjustments that arise due to changes in natural conditions, unexpected events or as otherwise necessary to ensure that the sample location is representative. Such changes can include minor updates in Site boundaries, changes in storm water drainage patterns, logistical or security adjustment. Any such movement of a sampler will be documented in the annual SDPPP, and be made available for public review. The Permittees shall provide that any permit modification request to EPA will be emailed to email list pursuant to Section I.7.b.*

The permit states in Part I.F.3 and 4:

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3. **Required Modifications:** *The Permittees must keep documents and records with the SDPPP as necessary to reflect:  
(c) Any change of monitoring requirement or compliance status;*
4. **SDPPP Updates:** *The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.*

The permit states in Part I.A.2:

**Management of Run-on and Runoff.** *The Permittees must divert, infiltrate, reuse, contain or otherwise reduce storm water run-on/runoff in order, to minimize pollutants in discharges.*

EPA's Industrial Stormwater Monitoring and Sampling Guide (EPA 832-B-09-003) states:

*There may be circumstances where benchmark values cannot be reasonably achieved because of local natural background concentrations (see 2008 MSGP Part 6.2.1.2). In such cases, EPA allows for benchmark exceedances. For example, high natural background levels of iron in soils or groundwater could cause exceedances of a benchmark value. This provision exempts facilities from further control measure evaluation and benchmark monitoring when natural background levels are solely responsible for the exceedance of a benchmark value.*

*To make this determination, natural background pollutant concentrations must be greater than the corresponding benchmark value, and there is no net facility contribution of the pollutant (i.e., average concentration detected in runoff from all monitored outfalls over four separate events minus the average natural concentration of the parameter for four separate events does not exceed zero).*

*For example, if the natural background concentration of TSS from an undisturbed watershed is 200 mg/L, an exemption from further benchmark monitoring / control measure evaluation is available if the average of your four benchmark samples is equal to or lower than 200 mg/L. There are additional requisites for claiming a natural background level exemption, including documentation. Details of these are contained in the 2008 MSGP in Part 6.2.1.2 and the Fact Sheet.*

20.6.4.7.N.1 NMAC states:

**Natural background** *means that a portion of a pollutant load in a surface water resulting from non-anthropogenic sources. Natural background does not include impacts resulting from historic or existing human activities.*

40 CFR Part 122.41(j)(1) states:

*Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.*

The permit states in Part I.F.1.d:

**Summary of Potential Pollutant Sources.** *The SDPPP must identify each Site at the facility where industrial materials or activities were previously exposed to storm water and from which allowable non-storm water discharges were released. The SDPPP must also identify the pollutants of concern associated with those activities.*

#### **Findings** for Permit Verification

When this permit was first drafted, LANS/DOE staff had collected some environmental data under the Federal Facilities Compliance Agreement (FFCA), as well as limited soil contaminant concentration data from RCRA investigation reports for some Sites. Over the past four years, significant data collection has occurred both for stormwater (CWA) and soil sampling (RCRA) purposes. Although there is not a method in the current permit to use soil sampling data for compliance with the NPDES permit

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requirements, it can still be used to inform processes under the NPDES permit, such as the representativeness of SMA sampler locations and whether the use of the RCRA SWMU boundary as the affected area is valid, or if the approach under this permit needs to be shifted to an “affected area” approach. The 405 Sites under this permit present unique scenarios based on the activity that occurred there and confounding factors such as current urban/residential interfaces and current industrial uses of the Site. It follows that each Site may have specific issues that could need individual attention. The NPDES program does not regulate facilities based on RCRA SWMU boundaries, but instead focuses on industrial materials that are exposed to stormwater, as cited in 40 CFR Part 122.26(b)(14). Throughout the discussion below for permit verification, the narrative here details conditions at the Sites visited by the inspectors and will address Site specific issues through a discussion of what occurred at the Site according to LANS/DOE’s records, stormwater data, soil sampling data and the inspectors’ best professional judgment about the representativeness of monitoring at those locations.

The permit requires that the 405 Sites monitored under this permit are monitored representatively. The permit, as stated above in Part I.D.2, allowed that Sites which were similar in the capability to discharge significantly similar pollutants could be monitored under the Site Monitoring Area (SMA) approach, which resulted the grouping and sampling of 250 SMAs across the lab. However, the SMA approach does not appear to be representative at a number of locations across the lab, for various reasons as outlined below.

LANS/DOE staff indicated during this inspection that SWMU boundaries for a Site, as described in the 1990 SWMU Report, could not be changed. Because of the 2005 Consent Order requirements, LANS/DOE has soil sampling data for many (but not all) Sites around the Lab. The soil data as represented during this inspection is used to determine the extent of pollution under RCRA, and can be used in this case to inform “affected area” determinations to ensure that storm water sampling is representative.

During this inspection, NMED visited 21 SMAs/48 Sites as listed below:

SMA Number	Site/SWMU Number	Watershed	Reason Visited
M-SMA-7.9	50-006(d)	Sandia/Mortendad	Alternative Compliance
S-SMA-0.25	03-013(a), 03-052(f)	Sandia/Mortendad	Alternative Compliance
S-SMA-2	03-012(b), 03-045(b), 03-045(c), 03-056(c)	Sandia/Mortendad	Alternative Compliance
S-SMA-3.53	03-014(b2)	Sandia/Mortendad	Major PCB Exceedance
ACID-SMA-1.05	00-030(g)	Los Alamos/Pueblo	< TALs
ACID-SMA-2	01-002(b)-00, 45-001, 45-002, 45-004	Los Alamos/Pueblo	Additional data shows exceedances
LA-SMA-5.02	01-003(e)	Los Alamos/Pueblo	Additional data shows exceedances
LA-SMA-3.1	01-001(e), 01-003(a)	Los Alamos/Pueblo	Additional data shows exceedances
LA-SMA-2.1	01-001(f)	Los Alamos/Pueblo	Major PCB Exceedance
LA-SMA-1.25	C-43-001	Los Alamos/Pueblo	Enhanced Control Monitoring (ECM) In Process
B-SMA-1	00-011(d)	Los Alamos/Pueblo	Additional data shows exceedances
S-SMA-2.01	03-052(b)	Sandia/Mortendad	Major PCB exceedance
Pratt-SMA-1.05	35-003(h), 35-003(p), 35-004(h), 35-009(d), 35-016(k), 35-016(m), 35-003(r), 35-016(l)	Sandia/Mortendad	Proposed Site deletion with TAL exceedances
CDB-SMA-1	46-003(c), 46-004(d2), 46-004(f), 46-004(t), 46-004(w), 46-008(g), 46-009(a), C-46-001	Sandia/Mortendad	Enhanced Control Monitoring (ECM) In Process



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SMA Number	Site/SWMU Number	Watershed	Reason Visited
CDB-SMA-0.55	46-004(g), 46-004(m), 46-004(s), 46-006(f)	Sandia/Mortendad	CoC without Controls – proposed delete
PJ-SMA-20	54-017	Pajarito	Complete cover certification
CHQ-SMA-0.5	33-004(g), 33-007(c), 33-009	Ancho/Chaquehui	No sample collected
S-SMA-6	72-001	Sandia/Mortendad	Major PCB exceedances
S-SMA-3.72	53-001(b)	Sandia/Mortendad	Proposed monitoring deletion
CDV-SMA-1.7	16-019	Water/Canon de Valle	Possible additional sampling needed
DP-SMA-2.35	21-021	Los Alamos/Pueblo	Large SMA
There were three SMAs/4 Sites that were discussed but due to time constraints were not able to be visited in person during this inspection. These Sites are listed below:			
3M-SMA-2.6	36-008, C-36-003	Pajarito	No sample collected
LA-SMA-5.91/LA-SMA-6.38/LA-SMA-6.395	21-021	Los Alamos/Pueblo	Large SMA
R-SMA-2.3	00-011(e)	Los Alamos/Pueblo	Tentative delete

The following is a discussion of each of the Sites visited, in detail, to discuss sampling representativeness and other pertinent issues as related to permit verification.

M-SMA-7.9:

Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs
M-SMA-7.9	50-006(d)	Alpha & Ra	Cyanide	All	PCBs

The IP storm water sampler is currently located at the northeast end of SWMU 50-006(d). LANS/DOE soil sampling data collected under the Consent Order indicates that the affected area may be outside of the SWMU boundary. Soil samples taken to the north and northwest of the SWMU boundary indicate levels above NMED HWB-approved background levels for Nitrate, Perchlorate, Chromium, Copper, Mercury, Barium, Lead, and Selenium; various organics, and radionuclides.

Baseline samples were collected for this Site on September 13, 2013. Baseline samples exceeded TALs for gross alpha and PCBs, both of which are associated with activities conducted historically at this Site.

Soil Sampling Data as provided during this inspection is included as Appendix D.

An Alternative Compliance Request (ACR) was submitted by LANS/DOE for this SMA in April 2014. The permittees state that due to the sources of the pollutants and technical feasibility and practicality, they cannot confirm compliance at this Site. The rationale includes a discussion of urban background sources of PCBs and gross alpha.

There were no sampler inspection forms included with inspection documentation, so it appears that Permittees turned off the sampler due to the ACR. The permit language related to submission of an alternative compliance request does not allow the cessation of sampling.

Run-on monitoring was not conducted at this Site. The monitoring data presented in the ACR show TAL exceedances at 3.4 times the TAL for gross alpha and 3.4 times the TAL for PCBs. According to LANS/DOE, soil data show that both contaminants were associated with historical activities at this Site.

LANS/DOE includes a discussion in the ACR regarding urban background sources of PCBs. According to the EPA's Industrial Stormwater Monitoring and Sampling Guide (EPA 832-B-09-003), quoted above, it states that background can be determined for local natural background levels. The MSGP, for reference, states in Part 6.2.1.2 that "Natural background pollutants include those substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants

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from earlier activity on your Site, or pollutants in run-on from neighboring sources that are not naturally occurring.” PCBs are not naturally occurring pollutants.

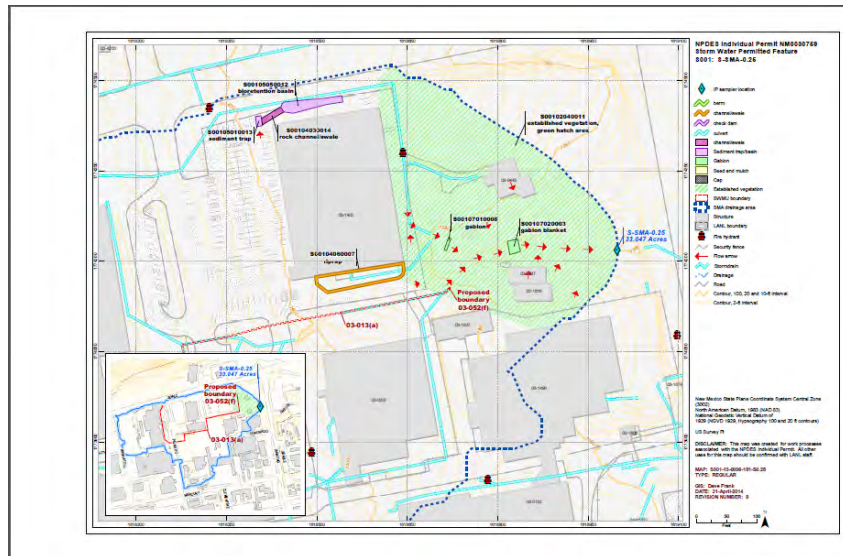
LANS/DOE claims that gross alpha exceedances are associated with industrial materials used at this Site based on soils data gathered during Consent Order sampling. However, no adjustment calculation was conducted, so there is not currently a way to determine whether the discharge exceeds the adjusted gross alpha TAL. As cited in 20.6.4.7.A (5), adjusted gross alpha is defined as *the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample, including radium-226, but excluding radon-222 and uranium. Also excluded are source, special nuclear and by-product material as defined by the Atomic Energy Act of 1954.*

While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in stormwater during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil, because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

benzo(b)fluoranthene	barium	nitrate	anthracene	benzo(a)anthracene
indeno(1,2,3-cd)pyrene	benzo(g,h,i)perylene	benzo(k)fluoranthene	chrysene	fluoranthene
	pyrene	toluene	tritium	strontium-90

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S-SMA-0.25:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs	Others
S-SMA-0.25	03-013(a)	Alpha & Ra	Cyanide	All	PCBs	SVC
	03-052(f)	Alpha & Ra	Cyanide	All	PCBs	

Baseline samples were collected at this Site on 7-28-2011 and 8-15-2011. Two samples were obtained. Exceedances were for copper, zinc, gross alpha, and PCBs. Enhanced controls were certified at this Site on 6-26-14. A sample was retrieved from this Site on 7-23-14 – no data for this sample was included with the inspection documentation.

There two SWMUs at this Site. SWMU 03-013(a) was a former storm drain that served floor drains in a maintenance shop. SWMU 03-052(f) is a former NPDES outfall that received floor drains in the maintenance shop. Common materials that were handled in the maintenance shop and discharged through these drains were Stoddard solvent, dry acid and caustics. Oils, beryllium machining, cooling water for welding torches, and a diesel spill were also included in historical activities here.

The IP stormwater sampler is currently located at the east end of the SMA. The current map included with the permit reapplication materials shows SWMU 03-052(f) as a point at the end of the stormwater/facility pipe. LANS/DOE soil sampling data collected under the Consent Order indicates that the affected area may be outside of the SWMU boundary as indicated in the application. Included with the inspection materials are soil maps (part of the Upper Sandia Canyon Aggregate Area Supplemental Investigation Report) that indicate soil contamination above NMED HWB-approved background levels for copper, cyanide, lead, zinc, chromium, perchlorate, barium, and assorted organics. Radionuclides were not evaluated in soil.

Soil sampling results are included in Appendix D.

An alternative compliance request (ACR) was submitted by LANS/DOE for this SMA in April 2013. The Permittees state that due to the sources of the pollutants and technical feasibility & practicality, they cannot confirm compliance at this Site. The rationale includes a discussion of urban sources of copper and zinc. Run-on monitoring was conducted within the SMA, above the SWMUs.

1. The monitoring data presented in the ACR shows a slight contribution to the copper load leaving the SMA. The same is true for zinc.
2. The monitoring shows a contribution from the Site for PCBs. Monitoring at S-ROM-0.25 (upstream of the SWMUs) showed concentrations of 0.00112 ug/L, and data at the SMA monitoring location showed a concentration of 0.0502 ug/L.

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3. In the 1990s, the operational section of the environmental compliance group at LANL went through the metallurgy building and confirmed that floor drains were sealed and were no longer contributing to 03-013(a). Storm water should be the only current discharge through these drains. No remediation has been taken due to residual contamination that could be inside the storm drain pipe.
4. Currently, monitoring for SMA compliance at this Site is also being conducted in the channel, and includes contributions from parking lots on the northeast side of the parking structure. The location of the sampler must be adjusted to give more representative data of the SWMUs within this SMA.

While the permit did provide some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water under this term of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

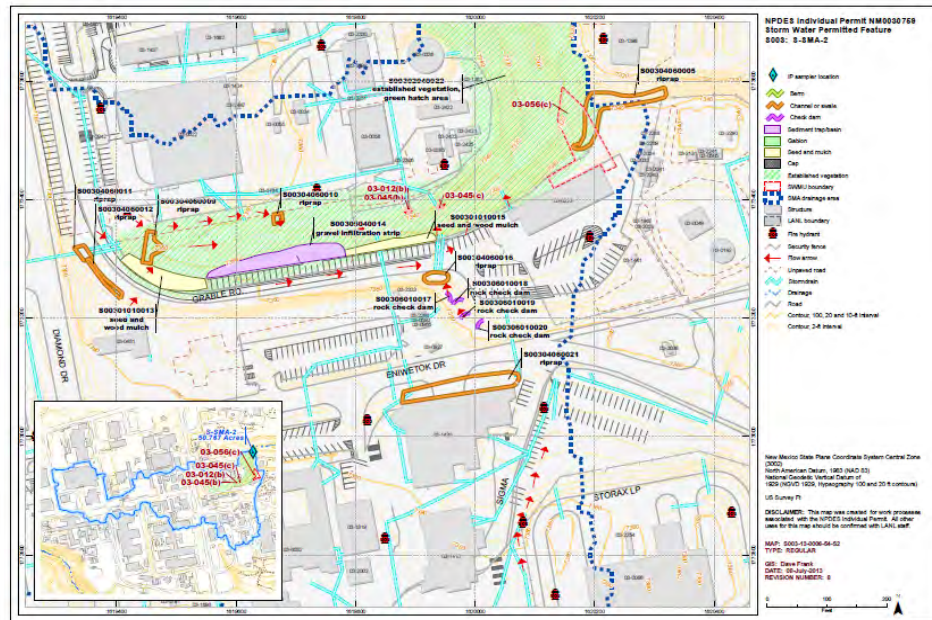
bis(2-ethylhexyl)phthalate	dibenzo(a,h)anthracene	fluorene	Toluene	benzo(a)anthracene
benzo(b)fluoranthene	barium	acenaphthene	anthracene	fluoranthene
indeno(1,2,3-cd)pyrene	benzo(g,h,i)perylene	benzo(k)fluoranthene	chrysene	strontium-90
tritium	pyrene			

There are other compounds detected in soil that do not have a specific water quality standard but could present toxicity issues.



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S-SMA-2:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs
S-SMA-2	03-012(b)	Alpha & Ra	Cyanide	All	PCBs
	03-045(b)	Alpha & Ra	Cyanide	All	PCBs
	03-045(c)	Alpha & Ra	Cyanide	All	PCBs
	03-056(c)	Alpha & Ra	Cyanide	All	PCBs

Baseline samples were collected at this SMA on 7-28-2011 and 8-13-2011. Exceedances were for copper, zinc, gross alpha, and PCBs. Enhanced controls were certified at this Site on 7-8-13. No sampler inspections for 2014 were included with the inspection documentation, so it appears that the sampler for the Site is off due to the alternative compliance request submitted on 4-30-2014.

SWMU 03-012(b) is soil contamination from cooling tower effluent. SWMU 03-045(b) is the currently permitted Outfall 001 under NM0028355 from the TA-46 SWSC and SERF that also contain occasional cooling tower effluent. SWMU 03-045(c) is the currently permitted outfall (03A027) under NM0028355. SWMU 03-056(c) is a historic transformer storage area that did contain PCB-containing dielectric fluid spills.

There were TAL exceedances after baseline control measure installation for copper, zinc, gross alpha and PCBs. After enhanced control measures were installed, there were exceedances for copper, zinc and PCBs. The IP sampler also collects effluent from Outfall 001, Outfall 027, and both MSGP outfalls from the power plant.

LANS/DOE claims that copper and zinc are not associated with the Sites based on soil data from RCRA consent order investigations. PCBs are also alleged not to have been associated with discharges from the outfalls in their historical operations based on soil data.

The sampler for this SMA is located in the receiving waterbody at the northeast end of the SMA watershed and collects runoff from approximately 50 acres. The SWMU boundary changed slightly for 03-056(c) between the soil sampling conducted under

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the Consent Order in 2010 and the current map included with the permit reapplication materials provided by the Permittees earlier this year. The new map shows the SWMU boundary extending out into the drainage. Currently, the SWMUs in this SMA are indicated as points at the end of an outfall (other than 03-056(c)), rather than the soil contamination that is likely along the bottom of the canyon.

Monitoring results (TAL exceedances) as well as MSGP information is compared in the table below:

Constituent	Concentration	Sample Event Date	Sampling Purpose/Associated Permit
Copper	5.8 ug/L	7-28-11	Baseline/IP
Copper	8.3 ug/L	8-13-11	Baseline/IP
Copper	4.43 ug/L	7-11-13	Enhanced Control Monitoring
Copper	5.08 ug/L	8-1-13	Enhanced Control Monitoring
Copper	36.4 ug/L	5-8-12	MSGP
Copper	181 ug/L	5-8-12	MSGP
Zinc	62.6 ug/L	7-28-11	Baseline/IP
Zinc	43.4 ug/L (avg)	8-13-11	Baseline/IP
Zinc	44.2 ug/L	8-1-13	Enhanced Control Monitoring
Zinc	54 ug/L	7-11-13	Enhanced Control Monitoring
Gross alpha	29 pCi/L	7-28-11	Baseline/IP
Gross alpha	10.6 pCi/L (avg)	8-13-11	Baseline/IP
PCB	140 ng/L	7-28-11	Baseline/IP
PCB	190 ng/L	8-13-11	Baseline/IP
PCB	49 ng/L	8-1-13	Enhanced Control Monitoring
PCB	220 ng/L	7-11-13	Enhanced Control Monitoring

- MSGP runoff from current industrial activities could be influencing IP sampler results. There are two co-located MSGP sampling locations, one above all the SWMUs located at the southwest corner of the power plant Site. The second MSGP sampler is at a location near the northeastern corner of the Site, which drains down toward the IP sampler.
- Sampler is located in a waterbody.

The SMA approach is not appropriate for the IP Sites where the MSGP facilities' discharge clearly influences the stormwater collection at the current IP sampler locations.

Run-on from non-Site related sources/background: This permit does not allow for the use of background data to qualify storm water sampling results from SMAs/Sites except when a Site has entered alternative compliance. However, LANS/DOE uses soil data and background storm water data in their SDPPPs from their metals (LA-UR-13-22841) and PCB background (LA-UR-12-1081) reports in order to justify that a pollutant is not Site related prior to submitting an alternative compliance request. No crosswalk, analysis or other method has been used for between soil and water data to establish that certain levels of pollutants in the soil will or will not transfer to stormwater. Also, no paired upstream/downstream Site specific samples have been taken at these Sites to show that the Site does or does not cause or contribute to a water quality impairment. The metals and PCB reports used Sites scattered around the lab to be "representative" of all Sites. However, due to hardness changes in stormwater around the lab, one background value for a hardness dependent metal is not representative of all discharges from a stormwater-regulated Site. Hardness dependent values must be determined per event for each Site.

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LANS/DOE installed and certified enhanced controls at this Site in July 2013. Completion of corrective action was certified on November 29, 2012 for SWMU 03-056(c) due to the receipt of a CoC with controls (requiring the monitoring of stormwater under this permit) from the NMED Hazardous Waste Bureau.

An ACR was submitted by LANS/DOE for this SMA in April 2013. The permittees state that due to the sources of the pollutants and technical feasibility and practicality, they cannot confirm compliance at this Site. The rationale includes a discussion of urban sources of copper and zinc. Run-on monitoring was conducted within the SMA, above the SWMUs.

The monitoring data presented in the ACR show a decrease in pollutant concentration for copper and zinc. However, EPA should be aware that this particular SMA presents some dilution factors. The active outfalls under LANS/DOE's Outfall Permit (NM0028355) for Outfall 001 and Outfall 03A027 discharge in this reach. The sampler is located in the channel and according to LANS staff is programmed to only take samples during storm events. LANS/DOE also claim urban background as a source, but this particular argument is based on their urban background study, which bases conditions at the lab on a few representative Sites. Since copper and zinc are hardness dependent metals, and hardness can vary widely across the lab, Site-specific run-on and runoff monitoring will be more representative to draw conclusions about what the Site is actually contributing to the metals load leaving the Site.

The monitoring data presented in the ACR show an increase of PCBs leaving the SMA. Again, there are actively discharging outfalls in this reach that could contribute to the PCB load leaving the SMA. Outfall 001 does have a PCB limit, while 03A027 does not. Run-on monitoring (geomean between the two monitoring locations) for PCBs show a concentration of 0.015 ug/L, while samples taken at the SMA monitoring location show a concentration of 0.14-0.19 ug/L.

During this inspection, LANS/DOE was completing construction at SWMU 03-056(c). The construction concerned installation of a piping system with associated inlet structure/pavement and velocity dissipation to bypass the potential contamination at this Site. Inspectors noted that sampling for the permit required that the initial suite of pollutants must be restarted due to the construction at the Site.

Additionally, the SMA sampler location is also influenced by two MSGP discharge locations from the power plant. Complete data sets were not obtained during this inspection for the MSGP Sites but it is possible that some copper and zinc could also be coming from the MSGP outfalls and influencing results at the SMA sampler.

Included with the inspection materials are soil maps (part of the Upper Sandia Canyon Aggregate Area Supplemental Investigation Report) that indicate soil contamination above NMED HWB-approved background levels for (inorganics) copper, lead, mercury, silver, zinc, magnesium, chromium, and assorted organics. Radionuclides were not evaluated in soil.

While the permit did provide some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water under this term of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with site activities. In accordance with Part I.F.1.d of the permit ("the SDPPP must also identify the pollutants of concern associated with those [industrial] activities."), Part I.F.3.b ("Findings of deficiencies in control measures during inspections or based on analytical monitoring results;"") and Part I.F.4 ("The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year."") of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

benzo(b)fluoranthene	benzo(g,h,i)perylene	acenaphthene	fluorene	benzo(a)anthracene
indeno(1,2,3-cd)pyrene	pyrene	benzo(k)fluoranthene	anthracene	fluoranthene



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chrysene	fluorene	toluene		
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There are other compounds detected in soil that do not have a specific water quality standard but could present toxicity issues.

S-SMA-3.53:

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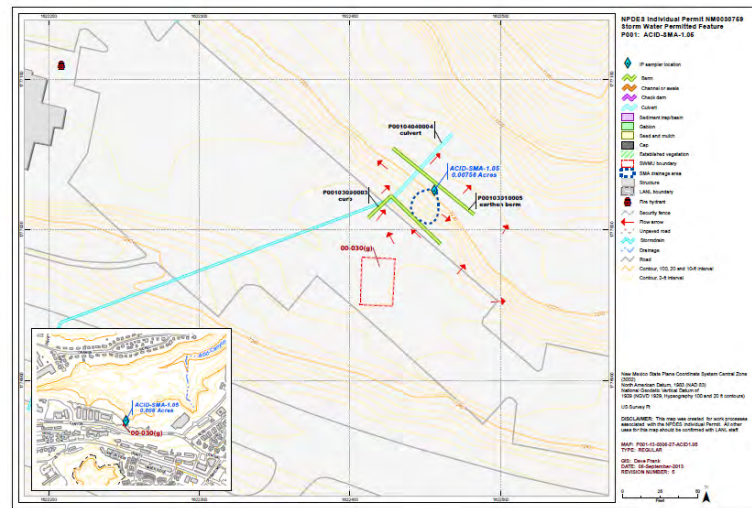
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While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

chrysene	fluoranthene	benzo(a)anthracene	pyrene	benzo(b)fluoranthene
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ACID-SMA-1.05:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs	Others
ACID-SMA-1.05	00-030(g)	Alpha & Ra	Cyanide	All	PCBs	PEST

SWMU 00-030(g) is a former septic system and outfall that conveyed wastes from the former TA-01 facilities.

A baseline sample was collected in 8-21-2011 and appeared to be under TALs for the Site. No second sample was collected within the 18 month sampling window. No sampler was present at this Site at the time of the inspection.

The IP stormwater sampler is currently located north of the SWMU boundary. The SWMU was an old septic system and outfall, which was removed in 1993. The septic tank location has been paved over with a parking lot, which was constructed sometime after 2001. Factoring in RCRA soil data, it appears that the current sampler location is not representative of the affected area of the Site. It appears that contamination traveled farther downstream from the outfall location and this is not reflected in the stormwater sampling data that has been collected to date.

According to soil data from the 2001 RFI Report for 00-030(g), soil data collected was above NMED HWB-approved background levels for lead, chromium (total), copper, nickel, and selenium; downstream of the septic tank and outfall location, soil screening levels were higher for chromium, lead, zinc, selenium, arsenic, mercury, antimony, cobalt, silver, thallium, barium, manganese, vanadium, beryllium, cadmium, and nickel. There were soil levels of radionuclides below the outfall location, as well, but they were constituents that LANS/DOE staff claims are exempted under the Atomic Energy Act (AEA) of 1954, such as americium-241 and plutonium-239. Organics noted in the soil data below the outfall are 4-4'-DDT, PCBs, chlordane, 4-4'-DDD, 4-4'-DDE, dieldrin, endosulfan, endrin aldehyde, and toxaphene.

The current sampler location does not appear to be representative of the affected area, therefore, the sampler should be relocated to reflect the affected area. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit ("the SDPPP must also identify the

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pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

barium	manganese	beryllium	chlordane	DDT and derivatives
endosulfan	endrin	dieldrin	toxaphene	dioxin



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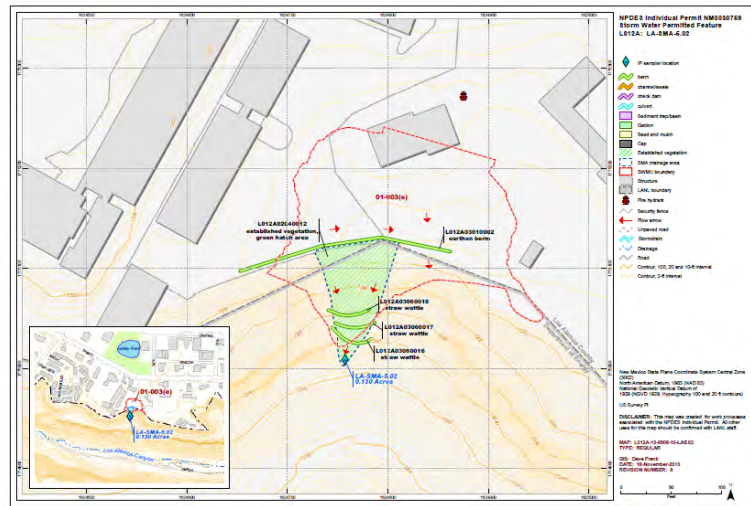
to address individual SWMUs. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

manganese	trichlorobenzene	strontium-90	tritium	acenaphthene
anthracene	benzo(a)anthracene	fluorene	benzo(b)fluoranthene	benzo(g,h,i)perylene
chrysene	fluoranthene	benzene	indeno(1,2,3-cd)pyrene	pyrene
toluene	bis(2-ethylhexyl)phthalate	1,3-dichlorobenzene	endrin	dieldrin
heptachlor epoxide	chlorophenol	hexachloroethane	benzo(k)fluoranthene	chlorobenzene
chloronaphthalene	1,2-dichlorobenzene	1,4-dichlorobenzene	dichlorophenol	barium
hexachlorobutadiene	hexachlorocyclopentadiene			



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LA-SMA-5.02:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs
LA-SMA-5.02	01-003(e)	Alpha & Ra	Cyanide	All	PCBs

SWMU 01-003(e) is a former surface disposal area for demolition debris (e.g., utility boxes, piping, etc.) which was pushed over the hillside. Stormwater TAL exceedances at this Site were for copper (1.1 times the TAL), gross alpha (1.3 times the TAL) and PCBs (53 times the TAL).

Two baseline samples were collected at this Site in August 2011. Exceedances were for copper, gross alpha and PCBs. The sampler was not observed to be in place at the time of this inspection. No sampler inspections were included with documentation, which appears to mean that the sampler is shut off. This Site obtained a CoC from NMED HWB on 9-10-10 and it appears that the permittee interpreted that no further samples were required due to the CoC, although the CoC still requires stormwater monitoring under the IP.

The current location of the IP stormwater sampler is downgradient of the SWMU, 01-003(a). This was a former disposal area, where the materials were at some point pushed over the side of the hill into the canyon. The mesa top portion of the SWMU is currently covered under an asphalt parking lot. The sampler currently captures approximately 0.13 acres of watershed. There is a storm drain that captures parking lot runoff outside the SWMU boundary and could direct that runoff onto the SWMU.

According to soil data from the 2010 Upper Los Alamos Canyon Aggregate Area Investigation Report, soil samples taken outside of and downslope of the IP sampler location indicate presence above NMED HWB-approved background levels for nitrate, lead, mercury, beryllium, perchlorate, selenium, nickel, tritium, and a number of organics. Soil data are included as Appendix D.

The current sampler location does not appear to be representative of the affected area, therefore the sampler should be relocated to reflect the affected area. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit ("the SDPPP must also identify the pollutants of concern associated with those [industrial] activities."), Part I.F.3.b ("Findings of deficiencies in control measures



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during inspections or based on analytical monitoring results;") and Part I.F.4 ("The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.") of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

beryllium	methylene chloride	barium	tritium	acenaphthene
anthracene	benzo(a)anthracene	fluorene	benzo(b)fluoranthene	benzo(g,h,i)perylene
chrysene	fluoranthene	benzene	indeno(1,2,3-cd)pyrene	pyrene
toluene	bis(2-ethylhexyl)phthalate	benzo(k)fluoranthene		

LA-SMA-3.1:



SWMU 01-001(e) is a former septic tank, inlet and outlet, and outfall in former TA-01. SWMU 01-003(a) is a former landfill. This contained debris from the demolition of former TA-01 structures. Some soil was removed from this Site but more soil will be removed in 2014 according to information submitted with the permit reapplication materials.

This Site has not yet collected a sample. The sampler was present at the time of this inspection. Although the Site has received a CoC from NMED HWB, the sampler still appears to be on because sampler inspection forms were included with the documentation.

The current location of the IP stormwater sampler is essentially in the middle of SWMU 01-003(a). SWMU 01-001(e) is currently covered under asphalt and apartment complex buildings. Some of SWMU 01-003(a) is also under pavement and buildings, but approximately two-thirds is vegetated and is located on the slope below the apartment complex into LA Canyon. The IP sampler collects approximately 0.040 acres of watershed, but does not capture the entire SWMU. LANS/DOE has not collected a stormwater sample at this Site yet, however, the NMED DOE-OB has collected samples downstream of the LANS/DOE sampler and their data show TAL exceedances of PCBs (809 times the TAL). Data also indicates that partial samples were collected here by LANS/DOE but due to the requirement in the permit to only analyze samples when the volume was large enough to run all analyses, those volumes were not analyzed.

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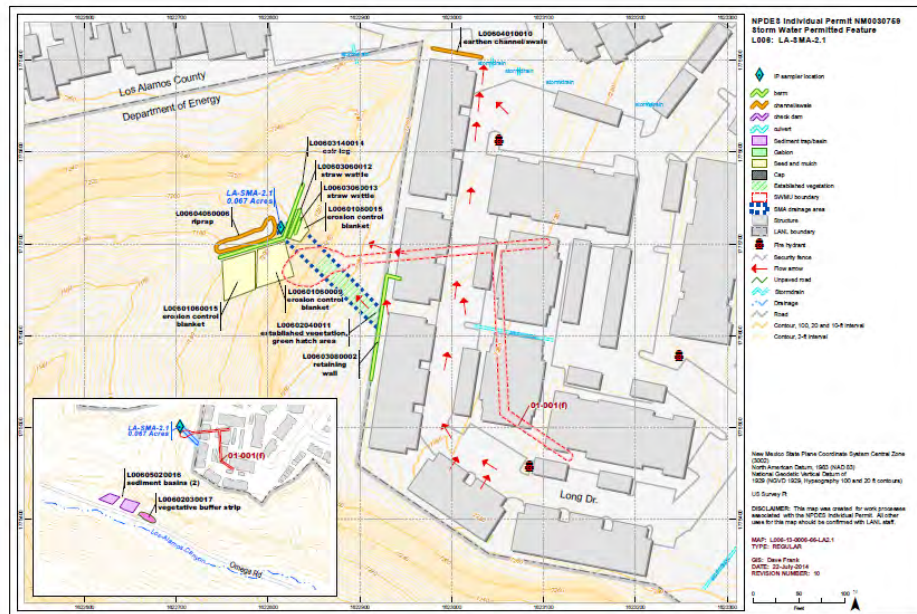
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The current sampler location does not appear to be representative of the affected area, therefore the sampler should be relocated. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

manganese	benzo(a)anthracene	barium	tritium	acenaphthene
anthracene	fluoranthene	fluorene	benzo(b)fluoranthene	benzo(g,h,i)perylene
chrysene	bis(2-ethylhexyl)phthalate	perchlorate	indeno(1,2,3-cd)pyrene	pyrene
benzo(k)fluoranthene				

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LA-SMA-2.1:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs
LA-SMA-2.1	01-001(f)	Alpha & Ra	Cyanide	All	PCBs

The current location of the IP stormwater sampler is just below SWMU 01-001(f). This SWMU was a former septic tank and outfall that served buildings where machining of uranium and foundry activities took place. Baseline monitoring exceedances were for copper (2.6 times the TAL), gross alpha (15 times the TAL) and PCBs (over 35,000 times the TAL). LANS/DOE personnel indicated that the SWMU boundary at this location likely was not drawn correctly (it appears a bit skewed). The mesa top portion of this SWMU has been covered by condominiums and parking lots. Further sampling in 2013 resulted in TAL exceedances of copper (2.6 times the TAL), gross alpha (8.3 times the TAL) and PCBs (33,000 times the TAL). This Site has been extensively remediated, including using a Vactor truck to “vacuum” the canyon twice – 2880 yd<sup>3</sup> of soil was removed during these efforts in 2009-2010.

The SMA sampler was present at the time of this inspection. No sampler inspections were present in the documentation, which leads the inspector to believe that the sampler is shut off. The documentation indicates that the Site is in planning for enhanced control measures.

According to soil data from the Upper Los Alamos Canyon Aggregate Area Investigation Report (2010), soil samples taken outside of and downslope of the IP sampler location indicate presence above NMED HWB-approved background levels for lead, chromium, selenium, nickel, nitrate, tritium, and PCBs, and a number of other organics. Soil data are included as Appendix D.

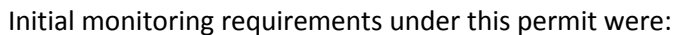
The current sampler does not appear to be representative of the affected area, therefore the sampler should be relocated to reflect the affected area. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of

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concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

methylene chloride	benzo(a)anthracene	fluorene	benzo(b)fluoranthene	acenaphthene
anthracene	fluoranthene	chrysene	indeno(1,2,3-cd)pyrene	benzo(g,h,i)perylene
bis(2-ethylhexyl)phthalate	benzo(k)fluoranthene	pyrene		

LA-SMA-1.25:

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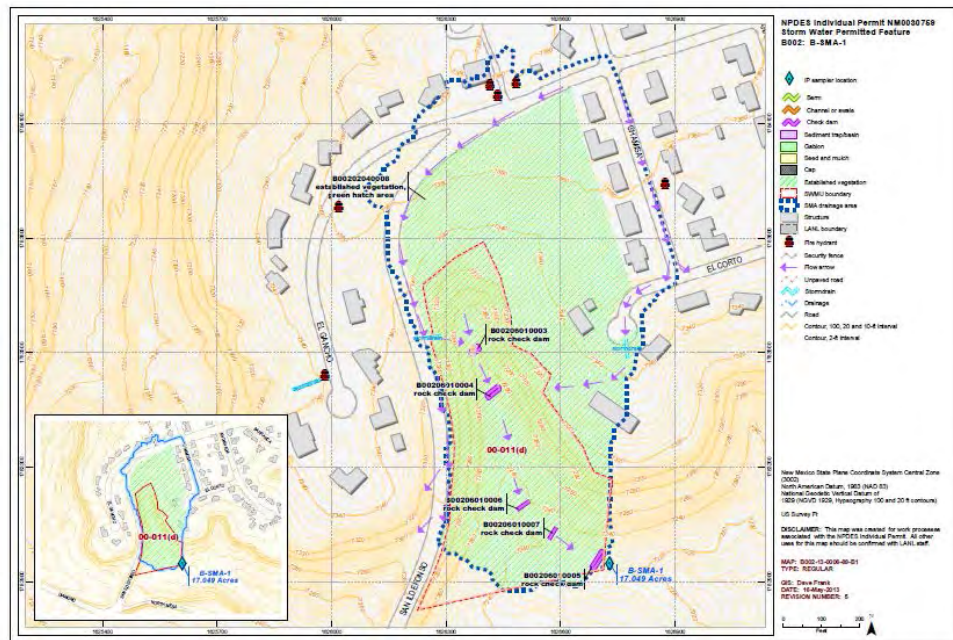
Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

anthracene	benzo(a)anthracene	pyrene	tritium	acenaphthene
chrysene	fluoranthene	fluorene	benzo(b)fluoranthene	benzo(g,h,i)perylene
benzo(k)fluoranthene	bis(2-ethylhexyl)phthalate	indeno(1,2,3-cd)pyrene		



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**B-SMA-1:**



Initial monitoring requirements under this permit were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	High Explosive
B-SMA-1	00-011(d)	Alpha & Ra	Cyanide	All	HE

SWMU 00-011(d) is a former bazooka firing area. UXO/OEW were removed in 1992. A CoC with controls (the controls being for UXO) was received for this Site on 5-7-13.

One baseline sample was collected on 9-13-2013. The sampler was present at the time of this inspection. However, no sampler inspection forms were included with the documentation, leading the inspector to believe that the sampler is shut off due to the receipt of a CoC from NMED HWB.

The current location of the IP stormwater sampler is just below the SWMU boundary of 00-011(d). This SWMU was a former bazooka firing area which was operated from 1944-1948. UXO and OEW were removed from the Site in 1992. Baseline sampling exceedances at this Site were for gross alpha (8.4 times the TAL) and silver (2 times the TAL, reported at the MQL, which was 1 ug/L, but the permit required MQL is 0.5 ug/L). The NMED DOE-Oversight Bureau located their sampler at the old FFCA location slightly downstream of LANS/DOE's sampler location and also showed data exceeding TALs for Thallium (1.01 times with TAL).

According to soil data collected during the Investigation Report for Guaje/Barrancas/Rendija Canyons (2007), soil samples taken within the SWMU boundary indicate presence above NMED HWB-approved background levels for barium, lead, selenium, perchlorate, manganese and cobalt. In this case, no soil sampling was done outside of the SWMU boundary. Soil data is included as Appendix D.

The current sampler may not be representative of the affected area (due to the data collected by NMED DOE-OB), therefore the sampler should be relocated. While the permit did provide some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm



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water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. For the following constituents that were detected in soil, and according to the inspector's best professional judgment, because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water under this term of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit ("the SDPPP must also identify the pollutants of concern associated with those [industrial] activities."), Part I.F.3.b ("Findings of deficiencies in control measures during inspections or based on analytical monitoring results;") and Part I.F.4 ("The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.") of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

barium
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PCB	164 ng/L	9-13-13	Enhanced Control Monitoring
PCB	0.8 ug/L *	7-2-2013	MSGP

\*Aroclor method was used for PCB analysis under the MSGP. This result is the addition of the 8 Aroclors added together for a "total" PCB result.

- MSGP sampler is located just upstream of the sampler for the IP.
- Neither the IP or the MSGP sampler capture runoff from the western section of the SWMU.

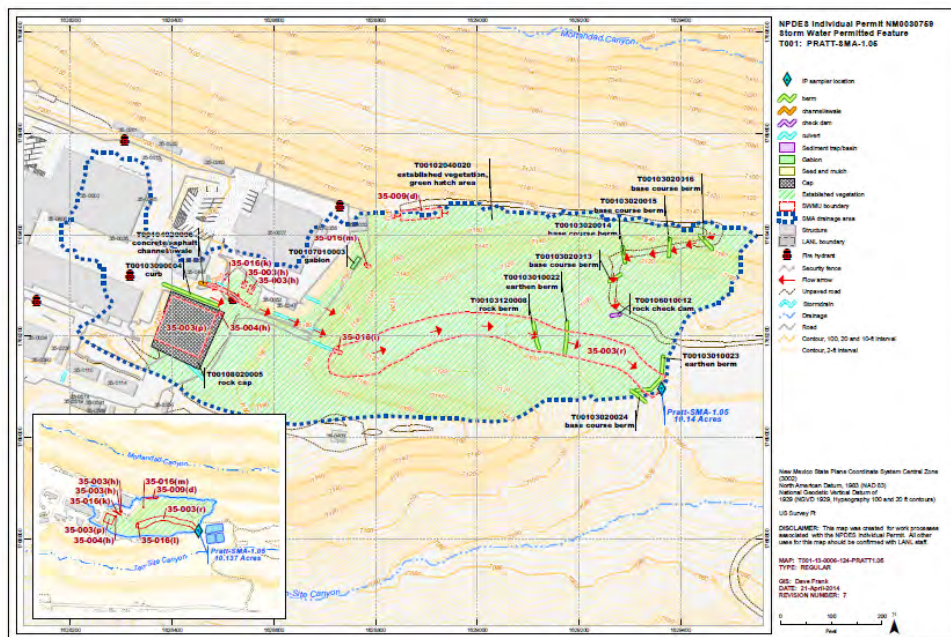
According to soil data collected during the Upper Sandia Canyon Aggregate Area Investigation Report (2010), soil samples taken outside of the SWMU boundary (and not currently in the watershed captured by the IP sampler) indicate presence above NMED HWB-approved background levels for barium, mercury, beryllium, manganese, cobalt, nickel, lead, aluminum, chromium, vanadium, copper, magnesium, and a number of organics, including PCBs and benzo(a)pyrene. Radionuclides were not assessed in soil at this location. Soil data are included as Appendix D.

The current sampler is not representative of the affected area, therefore the sampler should be relocated (or a second sampler installed) to reflect the affected area. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit ("the SDPPP must also identify the pollutants of concern associated with those [industrial] activities."), Part I.F.3.b ("Findings of deficiencies in control measures during inspections or based on analytical monitoring results;" and Part I.F.4 ("The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.") of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

manganese	barium	beryllium	dioxin	acenaphthene
anthracene	benzo(a)anthracene	benzo(a)pyrene	benzo(b)fluoranthene	benzo(g,h,i)perylene
chrysene	fluoranthene	fluorene	indeno(1,2,3-cd)pyrene	pyrene
toluene	2,3,7,8-TCDD			

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Pratt-SMA-1.05:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs
Pratt-SMA-1.05	35-003(h)	Alpha & Ra	Cyanide	All	PCBs
	35-003(p)	Alpha & Ra	Cyanide	All	PCBs
	35-004(h)	Alpha & Ra	Cyanide	All	PCBs
	35-009(d)	Alpha & Ra	Cyanide	All	PCBs
	35-016(k)	Alpha & Ra	Cyanide	All	PCBs
	35-016(m)	Alpha & Ra	Cyanide	All	PCBs
	35-003(r)	Alpha & Ra	Cyanide	All	PCBs
	35-016(l)	Alpha & Ra	Cyanide	All	PCBs

SWMU 35-003(h) is a former wastewater retention tank. SWMU 35-003(p) is a former air filter building that emitted radionuclide contaminated air, including strontium-90, and was removed in 1996. SWMU 35-004(h) is a former storage container area which housed hazardous wastes, oils, solvents and Freon. SWMU 35-009(d) is a former septic tank, 1800 ft<sup>2</sup> leach field that handled lab and sanitary wastes. The tank and manhole were filled with concrete. SWMU 35-016(k) is an inactive drainline and outfall formerly associated with outfall 04A116, which accepted cooling water from a gas laser building. SWMU 35-016(m) is an assortment of drains and outfalls associated with noncontact cooling water, however, the reactor and cooling tower were never built. SWMU 35-003(r) is a former outfall that accepted liquid sludge effluent from a tank farm. Radionuclides, mercury, PCBs and gross alpha are associated with this Site. SWMU 35-016(l) is storm drains which may have accepted past dielectric oil spills as well as a documented transformer oil leak.

Pratt-SMA-1.05 collected its baseline sample after the storm event of September 13, 2013. Erosion/BMP inspections were conducted on July 22 and August 14. Sampler inspections were present with the documentation, so the sampler appears to still be active. Enhanced control measures have not been installed or certified at this Site.

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The current location of the IP stormwater sampler is downgradient of most of the Sites, and immediately below AOC 35-003(r). This grouping of SWMUs/AOCs is the former location of the TA-35 WWTP and outfall, and associated sludge drying beds, as well as a radioactive air filter building, former hazardous waste SAA, former septic tank and a metal blowdown line meant to serve cooling towers that were never installed, but currently collect stormwater from around the Site. Activities that discharged to these various SWMUs and AOCs handled materials including strontium-90 (beta emitter), hazardous oils, solvents and Freon, radioactive liquid waste, barium, and PAHs. Baseline monitoring exceedances at this Site were aluminum (1.3 times the TAL), mercury (1.2 times the TAL), silver (2 times the TAL), gross alpha (6.4 times the TAL) and PCBs (700 times the TAL). Cleanup activities including deactivation and decommissioning of some buildings and structures and some soil removal occurred in the 1980s and 1990s.

According to soil data collected under the Middle Mortendad/Ten Site Aggregate Investigation Report (2008), soil samples taken within the upper SMA drainage area indicate presence above NMED HWB-approved background levels for mercury, zinc, chromium, copper, nickel, silver, boron, fluoride, bromide, selenium, barium, copper, thallium, antimony, tritium, strontium-90, trichloroethylene/trichloroethene, acetone, bis(2-ethylhexyl)phthalate, PCBs, butanone, fluoranthene, methylene chloride, pyrene, and trichlorofluoromethane.

Samples taken further downstream within AOC 35-003(r) indicate presence above NMED HWB-approved background levels for (inorganics) mercury, zinc, selenium, nickel, cadmium, lithium, aluminum, copper, barium, chromium, (radionuclides) strontium-90, tritium, (organics) PCBs, bis(2-ethylhexyl)phthalate, dieldrin, chrysene, pyrene, fluoranthene, fluorene, indeno(1,2,3-cd)Pyrene, benzo(a)pyrene, among others. Soil data are included as Appendix D.

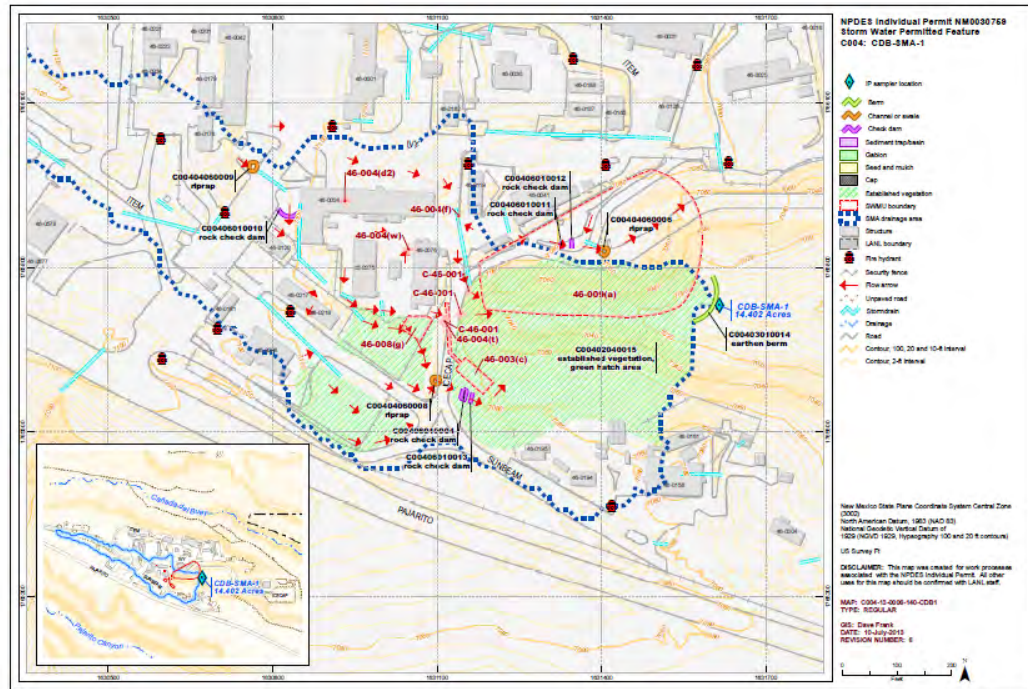
The current sampler may be representative of the affected area, however, a number of constituents are present in the soil that were not sampled for during this issuance of the Individual Permit. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit ("the SDPPP must also identify the pollutants of concern associated with those [industrial] activities."), Part I.F.3.b ("Findings of deficiencies in control measures during inspections or based on analytical monitoring results;"") and Part I.F.4 ("The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year."") of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

barium	beryllium	strontium-90	tritium	acenaphthene
anthracene	benzo(a)anthracene	methylene chloride	benzo(b)fluoranthene	benzo(g,h,i)perylene
chrysene	fluoranthene	fluorene	indeno(1,2,3-cd)pyrene	pyrene



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CDB-SMA-1:



Initial monitoring requirements for this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs
CDB-SMA-1	46-003(c)	Alpha & Ra	Cyanide	All	PCBs
	46-004(d2)	Alpha & Ra	Cyanide	All	PCBs
	46-004(f)	Alpha & Ra	Cyanide	All	PCBs
	46-004(t)	Alpha & Ra	Cyanide	All	PCBs
	46-004(w)	Alpha & Ra	Cyanide	All	PCBs
	46-008(g)	Alpha & Ra	Cyanide	All	PCBs
	46-009(a)	Alpha & Ra	Cyanide	All	PCBs
	C-46-001	Alpha & Ra	Cyanide	All	PCBs

The current location of the IP stormwater sampler is downgradient from the SMWUs/AOCs in this SMA, although part of SWMU 46-009(a) may not be captured by the sampler. These Sites are associated with septic systems, exhaust emissions, industrial drainlines, a former NPDES permitted outfall, a storage area, surface disposal area, and a one-time mercury spill area. Materials handled in these areas include fuel rod wastewater, acid sinks, laboratory waste, beryllium, beryllium oxide, floor drains, electrical labs, PCB oil, and mercury. Baseline monitoring exceedances at this Site included aluminum (1.5 times the TAL), copper (1.9 times the TAL), gross alpha (1 time the TAL) and PCBs (36 times the TAL). Enhanced monitoring controls were installed and certified in 2012. Enhanced monitoring exceedances included gross alpha (4.8 times the TAL) and PCBs (110 times the TAL).

Enhanced control measures were certified at this Site on July 30, 2012. According to documentation reviewed, enhanced control measure samples have not yet been collected. However, the inspector notes that sampler inspection forms included with this data package indicated that the earliest collected sample is 9-28-13. The inspector did not receive data from this event.

According to soil data collected during the Upper Canada del Buey Aggregate Area Investigation Report (2010), soil samples taken within and just outside the SMA indicate presence above NMED HWB-approved background levels for perchlorate, cadmium,

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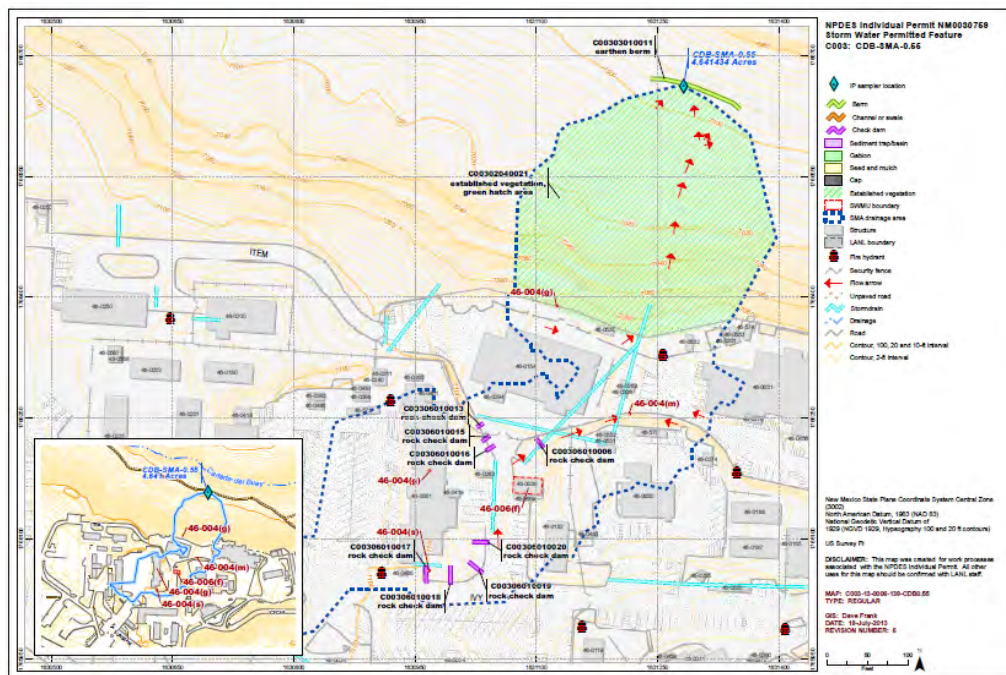
chromium, zinc, manganese, mercury, copper, aluminum, barium, cobalt, lead, magnesium, nickel, vanadium, and a number of organics. Soil data are included as part of Appendix D.

The current sampler location may be close to representative of the affected area, however, a number of constituents are present in the soil that were not sampled for during this permit term. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

barium	manganese	acenaphthene	anthracene	benzo(a)anthracene
toluene	benzo(b)fluoranthene	benzo(g,h,i)perylene	chrysene	fluoranthene
fluorene	indeno(1,2,3-cd)pyrene	pyrene	methylene chloride	

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CDB-SMA-0.55:



The initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs	Others
CDB-SMA-0.55	46-004(e2)	Alpha & Ra	Cyanide	All	PCBs	SVC
	46-004(g)	Alpha & Ra	Cyanide	All	PCBs	SVC
	46-004(m)	Alpha & Ra	Cyanide	All	PCBs	SVC
	46-004(s)	Alpha & Ra	Cyanide	All	PCBs	SVC
	46-006(f)	Alpha & Ra	Cyanide	All	PCBs	SVC

The current location of the IP stormwater sampler is downgradient from this grouping of SWMUs. When reviewing different versions of LANS/DOE's SDPPPs, it appears that SWMU 46-004(e2) was deleted from later editions of the SDPPP and accompanying documentation. Since (e2) was an outfall related to floor drains in a robotics facility, NMED needs more information on why this Site was deleted from documentation related to the IP. These SWMUs were related to outfalls that handled uranium processes, machine shops, laboratories, industrial wastewater and a storage area where oils, metals, beryllium alloys, lead and mercury containing items were stored. Baseline monitoring exceedances at this Site were copper (3.8 times the TAL), silver (2 times the TAL), hexachlorobenzene (2.1 times the TAL), and PCBs (1.1 times the TAL).

BMP inspections after rain events have been occurring as required, but there are no documented sampler inspections to indicate that the Lab is actively trying to collect a sample. The documentation indicates that corrective action is in planning but was initiated more than 30 days after the baseline sample was collected. New enhanced controls have not yet been installed.

According to soil data collected under the Upper Canada del Buey Aggregate Area Investigation Report (2010), soil samples taken within and outside the SMA indicate presence above background for (inorganics) cesium, perchlorate, lead, lithium, zinc, copper, cadmium, mercury, silver, selenium, thallium, beryllium, and a number of organics including PCBs. Soil data are included as part of Appendix D.



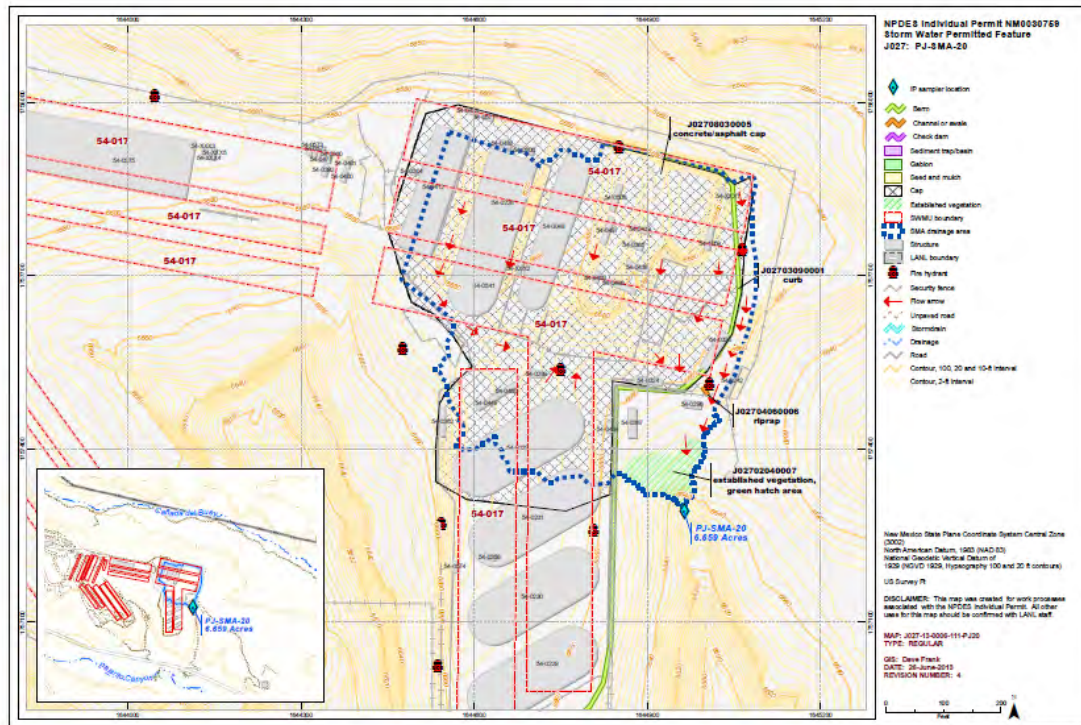
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The current sampler location may not be representative of the affected area, and a number of constituents are present in the soils that were not sampled for during this permit term. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;)” and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

beryllium	benzene	perchlorate	benzo(k)fluoranthene	acenaphthene
anthracene	benzo(a)anthracene	bis(2-ethylhexyl)phthalate	benzo(b)fluoranthene	benzo(g,h,i)perylene
chrysene	fluoranthene	fluorene	indeno(1,2,3-cd)pyrene	pyrene
methylene chloride	xylenes	toluene	1,1,1-trichloroethane	

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PJ-SMA-20:



Initial monitoring requirements for this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs
PJ-SMA-20	54-017	Alpha & Ra	Cyanide	All	PCBs

The SWMU for this Site is actually completely underground and is not exposed to stormwater. The baseline TAL exceedance for this Site is for copper (1.9 times the TAL).

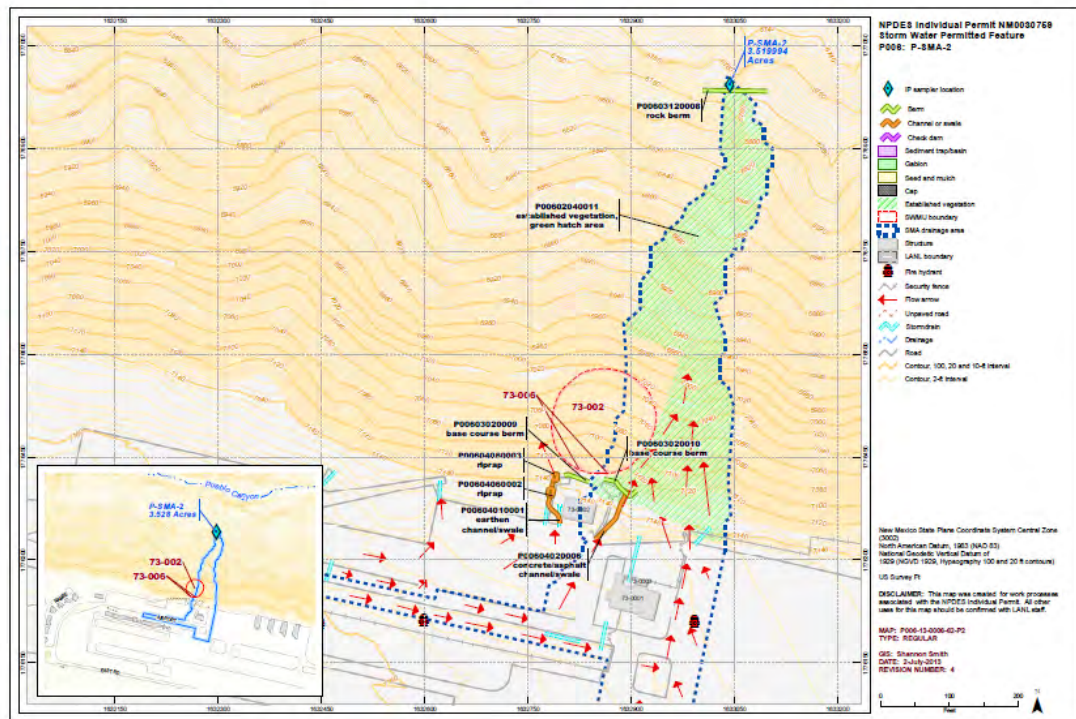
A baseline sample was collected at this Site on July 29, 2011. Permittees certified complete cover on October 25, 2013. A sample was collected from this Site 5-28-14. Data showed exceedance for gross alpha. NMED has concerns about the MQLs in the permit for silver and cadmium. Both reported results were above TALs but at the defined MQL in the permit.

According to soil data collected as part of the MDA G Investigation Work Plan (2004), soil samples taken just outside the SWMU area indicate some presence for tritium, but this would not be captured by the current sampler location.

The current location of the IP stormwater sampler appears to be mostly representative of the Site, however, because soil data does indicate the presence of tritium along Pajarito Road in three locations, tritium monitoring should be added to the monitoring scheme in the future for this Site.

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**P-SMA-2:**



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	Others
P-SMA-2	73-002	Alpha & Ra	Cyanide	All	Dioxin
	73-006	Alpha & Ra	Cyanide	All	

The SWMUs associated with this SMA consist of a former incinerator where operations were ceased due to incomplete combustion and the associated drainlines from floor drains. The incinerator was used to burn classified documents, and after transfer to Los Alamos County, it was used to burn municipal trash. Incinerator operations were ceased in the 1970s. Stormwater data has not been collected for this Site yet.

The location of the IP sampler captures about half of the SWMU boundary designated as the push pile over the side of the cliff.

Soil data collected as part of the SWMU 73-002 and Consolidated Unit 73-002-99 Investigation Report (2007) indicate that there is presence above NMED HWB approved soil background levels for perchlorate, copper, mercury, zinc, barium, cadmium, lead, silver, thallium, vanadium, chromium, selenium, barium, magnesium, aluminum, arsenic, tritium, strontium-90, DDT and derivatives, and a number of other organics.

The current location of the IP stormwater sampler does not appear to be representative of the affected area at these Sites. While the permit did give TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit ("the SDPPP must also identify the pollutants of concern associated with those [industrial] activities."), Part I.F.3.b ("Findings of deficiencies in control measures during inspections or based on analytical monitoring results;") and Part

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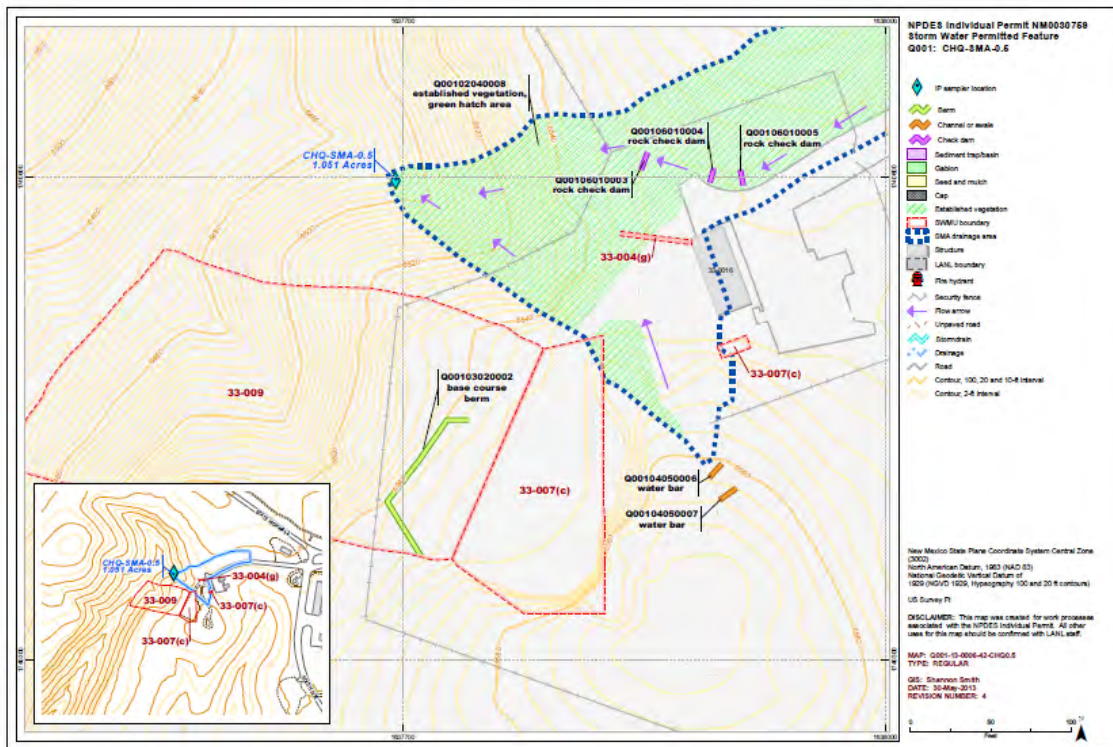
I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

barium	chlordane	tritium	strontium-90	DDT and derivatives
beryllium	benzene	benzo(k)fluoranthene	dieldrin	acenaphthene
anthracene	benzo(a)anthracene	2,3,7,8-TCDD	benzo(b)fluoranthene	benzo(g,h,i)perylene
chrysene	fluoranthene	fluorene	indeno(1,2,3-cd)pyrene	pyrene
methylene chloride	bis(2-ethylhexyl)phthalate	xlenes	toluene	1,1,1-trichloroethane



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CHQ-SMA-0.5:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs	High Explosive
CHQ-SMA-0.5	33-004(g)	Alpha & Ra	Cyanide	All		
	33-007(c)	Alpha & Ra	Cyanide	All		HE
	33-009	Alpha & Ra	Cyanide	All	PCBs	

The SWMUs associated with this SMA are a former outfall and drainline associated with a test gun building for initiator tests, abandoned firing Sites and a former surface disposal area, where some PCB contaminated transformers, metal wastes, light bulbs, tires and drums were stored. Materials of concern at SWMU 33-007(c) included beryllium, polonium-210, uranium, copper, lead, tungsten and stainless steel. There was a reported leak of radioactive material, and cleanup was documented as bulldozing contaminated surface soils from the shot area into the canyon below. During cleanup activities, 200 yd<sup>3</sup> of soil was removed from catcher boxes and the Site was stabilized. At 33-009, a former surface disposal area, contaminated soil and debris from firing activities was pushed into the canyon. After the Manhattan Project activities, this area was also used as a storage area for defective electrical capacitors for approximately five years. Materials were removed from the Site and disposed at MDA G, and included DU pieces, electrical capacitors, metal turnings, old tires and fluorescent light tubes. PCB-contaminated oil was measured from capacitors at 100 ppm. Baseline monitoring has not been completed for this Site. The IP sampler location will only capture runoff from the 33-004(g) SWMU and will not capture the 33-007(c) or 33-009 Sites.

According to documentation submitted with this inspection, Permittees collected a baseline monitoring sample on 7-24-2014. No data has been submitted to EPA or NMED in association with this sampling event.

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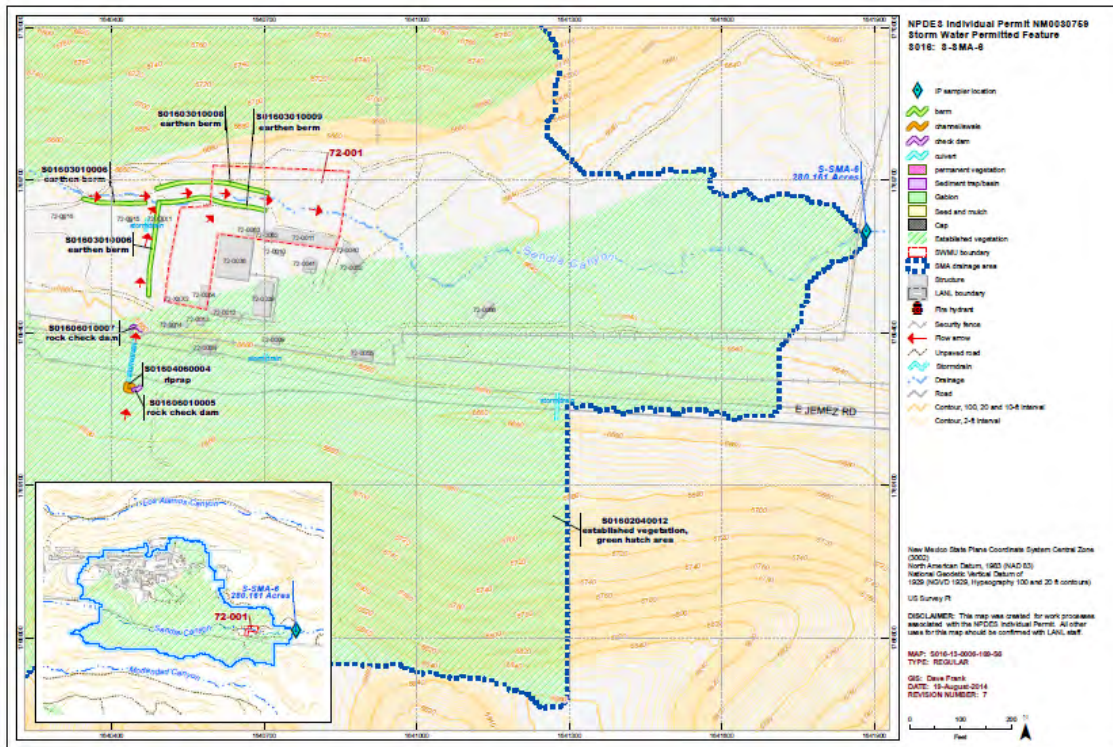
Only one sampler had been deployed for monitoring at this Site and has not collected a sample. However, this sampler is positioned such that it will only collect runoff from Sites 33-004(g) and a small portion of 33-007(c). The entire Site 33-009 and most of 33-007(c) are in another drainage not captured by the current sampler.

Consent Order investigations have not yet begun at this Site and consequently LANS/DOE does not have soil data to determine what they term to be significant industrial materials related to this Site.

The current location of the IP sampler is not representative of all of the affected area at these Sites and should be moved or a second sampler should be installed to capture runoff from the other two SWMUs.

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S-SMA-6:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs	High Explosive
S-SMA-6	72-001	Alpha & Ra	Cyanide	All	PCBs	HE

The SWMU associated with this SMA was a historical firing range, which is also its current use. Baseline monitoring showed TAL exceedances for aluminum (2 times the TAL), copper (2 times the TAL), gross alpha (410 times the TAL), radium 226 & 228 (1.5 times the TAL), cyanide (1.8 times the TAL) and PCBs (7200 times the TAL).

Current sampling location is the old FFCA location. The differences between the FFCA investigation and the current sampling for this permit are markedly different due to the purpose of sampling under each effort. The FFCA sampling was a characterization effort to determine what kinds of contamination were coming off of the various SWMUs around the lab. Sampling under this permit is targeted at ensuring that discharges off of the specific SWMUs are not causing or contributing to exceedances of water quality standards. The current location of this sampler does not illustrate runoff from this SWMU but characterizes the diluted runoff from many Sites contributing to this canyon.

Samples have been obtained for the Site and there are exceedances of the ATALs for Cyanide, adjusted gross alpha, PCBs, Ra 226 + 228, and exceedances of the MTALs for Aluminum and Copper.

LANS/DOE submitted a permit modification request to EPA for this Site in October 2013 due to the conclusion that many of the required monitoring constituents are not considered to be Site-related. However, due to the sampler location, the data collected is not representative of the discharge from the Site because it collects stormwater from a large (approximately 280 acre) drainage. The claim that the pollutants are not Site related cannot be proven or disproven with the available water quality data.

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Additionally, the Site was under construction, so LANS/DOE staff will need to restart sampling for the permit required constituents once construction is complete.

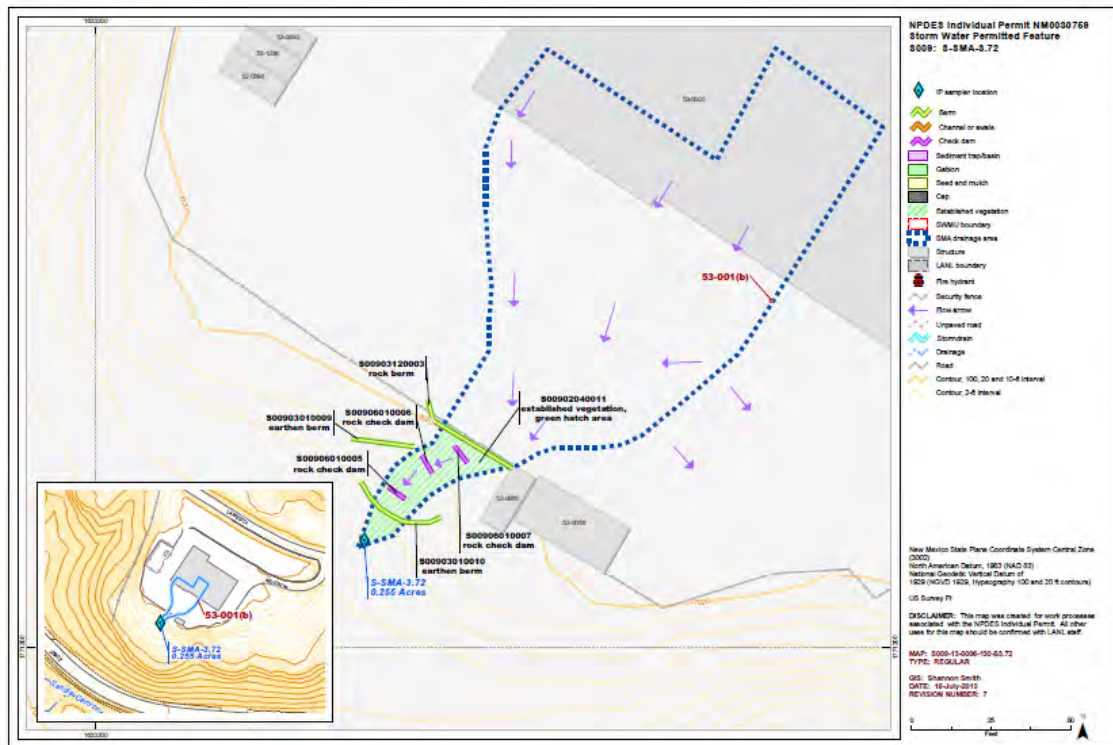
Soil sampling data available for this Site (for metals only) show that the only metal above background levels is selenium, downstream of the SWMU boundary.

The current sampler location is not representative of the affected area and should be moved closer to the affected area. In addition, depending on the new sampler location, run-on monitoring may also be helpful at this location to show that the Site is not causing or contributing to a violation of the TAL.



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S-SMA-3.72:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	PCBs
S-SMA-3.72	53-001(b)	Alpha & Ra	Cyanide	All	PCBs

The SWMU associated with this Site was a former storage area where products and wastes associated with maintenance activities were stored, such as spent trichloroethene, Freon, solvents and acidic waste; some drums were marked with hazardous waste labels in what may have been a less than 90 day storage area that was removed in 1998.

No stormwater sample has been collected at this Site yet.

Most of the area associated with this SMA is covered by an asphalt parking lot. The SWMU is only defined as a point and is unlike other SWMUs that include a flow path. It is possible that the drainage through the parking lot will flow to the west and around the location of the current sampler.

Soil data collected during the Lower Sandia Canyon Aggregate Area Investigation Report (2010) was taken outside of and downstream of the SWMU boundary. The data indicate the presence above NMED HWB-approved background levels of chromium, copper, lead, zinc, antimony, barium, silver, cadmium, PCBs and TPHs.

The current sampler location may not be representative of the discharge from the Site. While the permit did give TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the

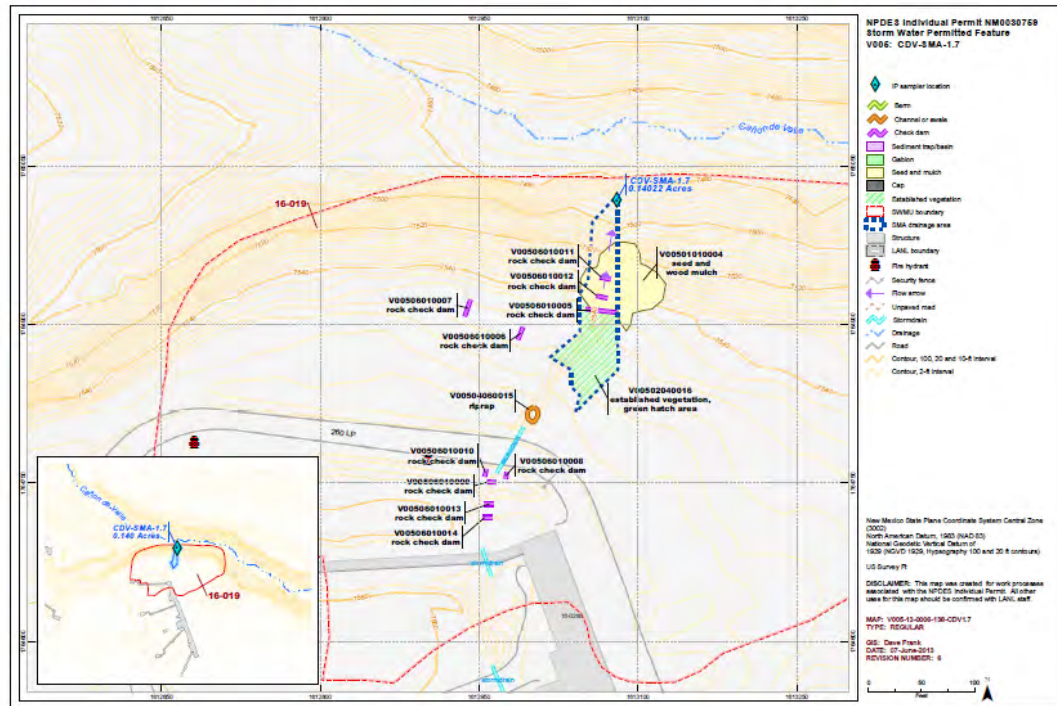
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permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

barium	TPHs
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CDV-SMA-1.7:



Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals	High Explosive
CDV-SMA-1.7	16-019	Alpha & Ra	Cyanide	All	HE

The SWMU associated with this Site is part of MDA R, which consists of the original World War II S-Site Burning Ground and former waste disposal Site. This MDA was used specifically to burn HE wastes; at first, directly on the ground, and later in three adjacent shallow burning pits. Burning operations ceased in the 1950s and the 260 line buildings were built after filling in the burn pits with the materials comprising the associated berms. This Site burned underground for several weeks during and after the Cerro Grande fire in 2000.

Baseline stormwater TALs exceeded at this Site include gross alpha (2.46 times the TAL), cyanide (1.75 times the TAL), RDX (4.54 times the TAL) and copper (2.56 times the TAL). LANS claims that Cyanide and gross alpha are not associated with materials historically managed at the Site.

The current location of the sampler is in the middle of the SWMU. There are other channels leaving this Site that are not currently monitored.

Some of the SWMU is covered under asphalt parking lots.

Erosion that occurred during the September 2013 monsoonal storms created a new channel to the west of the current channel where sampling is occurring. At the time of this inspection, construction was occurring to install a bar ditch near the road to alleviate some of the erosive flows leaving the Site with associated velocity dissipation at the end of the bar ditch and a pipe to carry stormwater runoff around the SWMU area to avoid mobilizing soil and contaminants from this Site. The inspectors noted

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that sampling requirements would have to be re-started because the construction disturbance within the affected area of the Site.

Soil data collected during the Canon de Valle Aggregate Area Investigation Report (2006) were taken outside of and downstream of the SWMU boundary. The data indicate the presence above NMED HWB-approved background levels of barium, cobalt, manganese, nickel, thallium, vanadium, silver, chromium, selenium, zinc, uranium, aluminum, arsenic, lead, copper, beryllium, boron, and nitrates, as well as toluenes, RDX, and a number of other organics. Soil data are included as part of Appendix D.

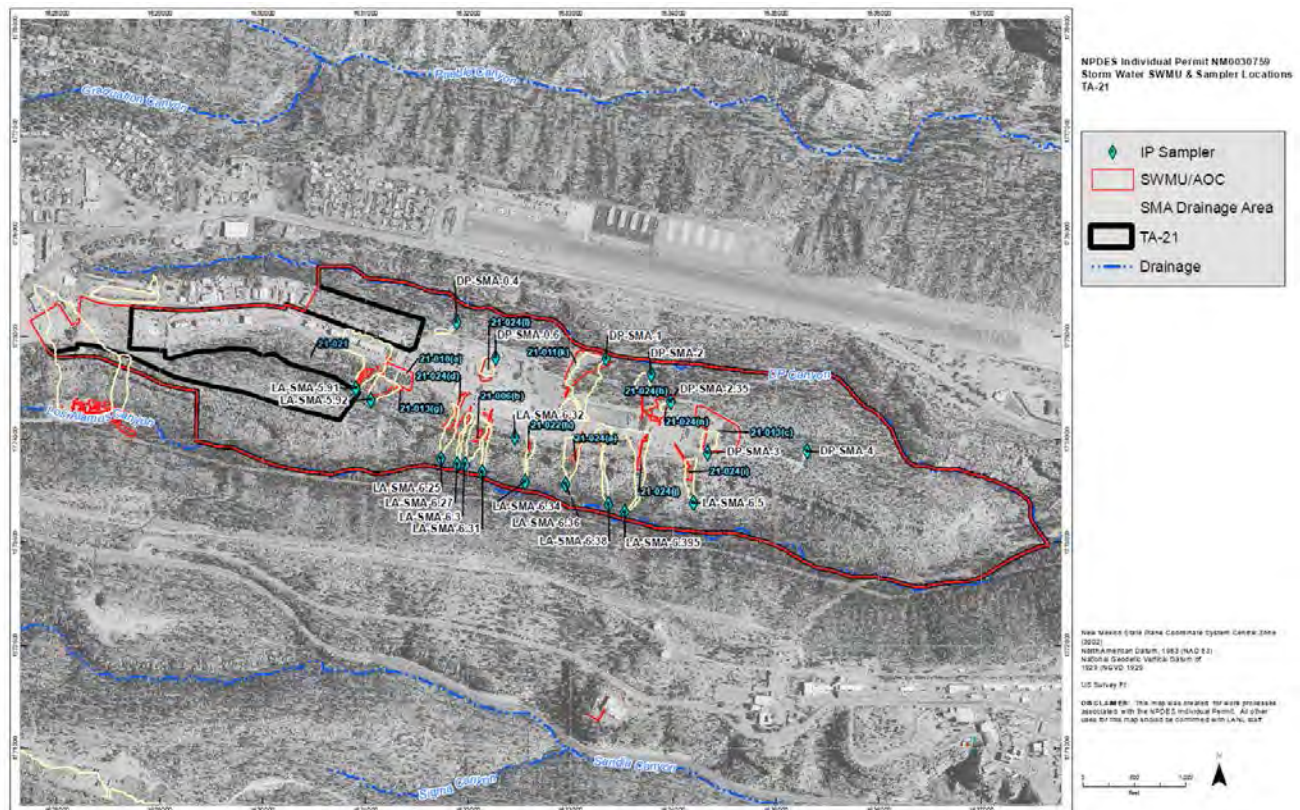
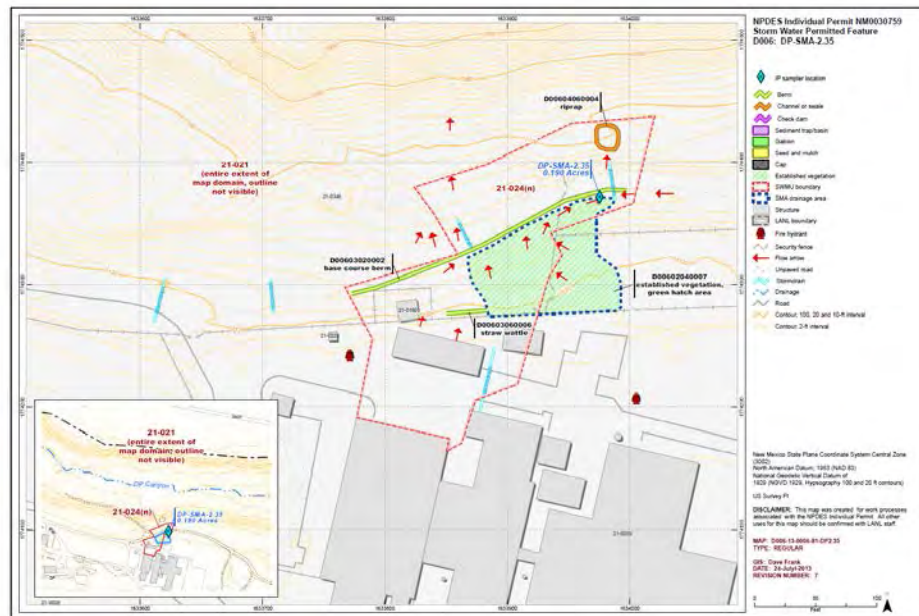
The current sampler location is not representative of the discharge from the Site. While the permit did give some TALs for some semi-volatile compounds and organics, it did not include other constituents that were detected in soil during Consent Order investigations. The following compounds were detected above NMED HWB-approved background levels according to Consent Order soil data, but were not sampled in storm water during this issuance of the Individual Permit. As cited above, the permit requires that LANS/DOE update their SDPPPs and update the pollutants of concern associated with these Sites during that process. LANS/DOE did not update for additional pollutants associated with Site activities. In accordance with Part I.F.1.d of the permit (“the SDPPP must also identify the pollutants of concern associated with those [industrial] activities.”), Part I.F.3.b (“Findings of deficiencies in control measures during inspections or based on analytical monitoring results;”) and Part I.F.4 (“The SDPPP shall be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year.”) of the NPDES permit. For the following constituents that were detected in soil because NMED has water quality standards for the following pollutants, LANS/DOE should be sampling for these constituents in storm water:

barium	manganese	beryllium	toluenes	HMX
bis(2-ethylhexyl)phthalate	pyridine	phenanthrene	fluoranthene	pyrine



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DP-SMA-2.35 (targeted SWMU 21-021, which covers many SMAs):



Discussion continued on the next page.

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Initial monitoring requirements at this Site were:

SMA Number	Site Number	Radioactivity	Cyanide	Metals
DP-SMA-2.35	21-021	Alpha & Ra	Cyanide	All
	21-024(n)	Alpha & Ra	Cyanide	All

The SWMUs associated with this Site are described as follows: SWMU 21-024(n) was a corrugated metal pipe and associated outfall from a building that was previously a warehouse, a laboratory and a furnace, which was a heating unit for DP East. The SWMU also includes three additional drainlines from the facility. In 1988, reconnaissance sampling (one sample) results were above detection limits for zinc, plutonium 239/240, tritium, and oil and grease. Petroleum products were also cited as being likely because of the presence of the furnace.

SWMU 21-021 is associated with air stack releases of plutonium, strontium and possible chemical constituents at TA-21, which is cited in LANS/DOE's SDPPP as an area of 300,000 m<sup>2</sup>. This TA is noted within 17 SMAs and as such, has not been effectively monitored for stormwater quality. The samplers that are located within the SMAs that also include Site 21-021 are targeted to sample the other Sites within those respective SMAs, according to LANS staff. Admittedly this is a difficult Site from which to obtain representative samples.

LANS documents that during the 1992 RFI, 155 shallow soil samples (<3 feet in depth) were taken from a 40-m x 40-m grid across the entire TA. For RCRA purposes, LANS/DOE does not plan to submit a CoC request for this Site until all other Site investigations are complete within TA-21.

There have been radiological detections at samplers whose area encompasses part of 21-021 = DP-SMA-3, DP-SMA-2.35, DP-SMA-0.3, LA-SMA-6.395, LA-SMA-5.92, and LA-SMA-5.91.

CoCs have been obtained for some Sites within the SMAs that also include 21-021.

### **Additional Pollutants for Monitoring**

The following sections of this report are included for clarification and as a means of discussing current and future permit requirements.

Included in this report is the document, Appendix B, from LANS/DOE's permit reapplication materials. LANS/DOE presented information in the revised version of this document identifying additional pollutants that they added to the proposed monitoring requirements for the new permit. This list differs from the discussion above of the Sites that were visited during this inspection. In their initial evaluation, the Permittees rely on Site histories to determine what contaminants are and are not Site-related. This report identifies additional pollutants that should be added for consideration in the new permit.

Another consideration for the new permit is how Sites are characterized and how "associated" or "Site-related" pollutants are identified. Oftentimes, LANS/DOE's documentation, specifically in the SDPPPs, cites soil sampling and Site histories, and uses that documentation to show their conclusions that a pollutant either is or is not Site related. As seen in sampling results, there are pollutants leaving a Site that LANS/DOE has stated are not "Site-related" but still show the potential to either cause or contribute to water quality exceedances. Conversely, there are Sites that were granted clean closure under RCRA prior to the consent order that may not have needed coverage under the current permit. EPA should consider a mechanism to evaluate pollution above water quality standards when it is not Site related, and investigate a potential new Site that could then be added to the permit for monitoring and cleanup.

### **Use of Certificates of Completion for Clean Water Act Purposes**

The term "Certificate of Completion" (CoC) is a DOE/LANL-specific term (not found in RCRA) which was developed during the negotiation process of the Consent Order. The term is not specifically defined in the Consent Order. This term is used to indicate that the Permittees, under their RCRA permit, have completed administrative tasks required under that enforcement action. A CoC can be issued either with or without controls. Controls can be physical (i.e., specific BMPs must be in place) or they can be administrative controls (i.e., industrial use of the Site, continued stormwater monitoring under the NPDES Stormwater Individual Permit). The language below from the Consent Order relates to work required under the RCRA process and does not include assessments of water quality by the Permittees.

From the Consent Order (VII.E.6.b), available at [http://www.nmenv.state.nm.us/HWB/documents/LANL\\_10-29-2012\\_Consent\\_Order\\_-\\_MODIFIED\\_10-29-2012.pdf](http://www.nmenv.state.nm.us/HWB/documents/LANL_10-29-2012_Consent_Order_-_MODIFIED_10-29-2012.pdf) :

*The Respondents may request a Certificate of Completion for any SWMU or AOC. With such request, Respondents shall submit an appropriate report (e.g., investigation report, corrective measures implementation report or other report prepared under this Consent Order) documenting completion of all work required at the SWMU or AOC. Upon receipt of an appropriate report and request for a Certificate of Completion, the Department will determine whether the requirements of this Consent Order for corrective action for the SWMU or AOC have been satisfied. The Department may conduct an inspection of the SWMU or AOC or request additional information from the Respondents to make this determination. If the Department determines that the requirements have not been satisfied for the SWMU or AOC, it will notify the Respondents in writing of the actions that are necessary to correct the deficiencies. The Respondents shall implement such actions in accordance with the notification. If the Department determines that the requirements of this Consent Order have been satisfied for the SWMU or AOC, it will issue to the Respondents a written Certificate of Completion, which shall state that Corrective Action is Complete with Controls or that Corrective Action is Complete without Controls.*

The NMED Hazardous Waste Bureau does not evaluate compliance with WQCC-approved water quality standards when a CoC is issued, but as shown in Appendix F, will typically issue a CoC with controls to mandate continued stormwater monitoring under the IP. This is For a Site to be removed from the Permittees' RCRA permit under a Class III Modification, NMED Hazardous Waste Bureau would require a formal letter from the NMED Surface Water Quality Bureau stating that stormwater monitoring has met the applicable requirements of 20.6.4 NMAC.

As detailed through this inspection report, the use of CoCs (as the permit language is currently written) could in fact impede the process of assessment of compliance with water quality standards. EPA does state in the response to comments when the permit was issued that effectiveness of installed BMPs will be demonstrated through confirmation monitoring.

### **Background Concentrations of Pollutants**

The Permittees have drafted two background reports, titled *Background Metals Concentrations and Radioactivity in Storm Water on the Pajarito Plateau, Northern New Mexico* (LA-UR-13-22841, April 2013) and *Polychlorinated Biphenyls in Precipitation and Stormwater within the Upper Rio Grande Watershed* (LA-UR-12-1081, May 2012). The Permittees have used the information in these reports to justify that Sites are not causing or contributing to water quality exceedances.

In the Permit's Response to Comments (February 9, 2009), EPA discusses the requirement to address run-on concentrations of pollutants to a Site, and also allows the Permittees to request No Further Action on a Site if the permit TAL exceedances are attributable solely to natural background levels in Part VI.C.2 (Comment 15). However, EPA notes that "In order to use this provision, the discharger must (1) *document and obtain EPA approval of the supporting rationale for establishing background* (emphasis added); demonstrate that the values above target level are attributable solely to natural background pollutant levels; (2) have results that show pollutant levels are less than or equal to the concentration of that pollutant in the natural background; and (3) notify EPA that values above target action levels are attributable solely to natural background pollutant levels." NMED does not have documentation that EPA has approved the use of these background reports.

### **Section B – Recordkeeping and Reporting Evaluation – Overall Rating of Unsatisfactory**

#### **Permit Requirements for Recordkeeping and Reporting**

The permit states in Part I.F.1(b) & (d):

*(b) **Site Description.** The facility's SDPPP must include historical activities at each Site, precipitation information, general location map, and Site maps.*

*(d) **Summary of Potential Pollutant Sources.** The SDPPP must identify each Site at the facility where industrial materials or activities were previously exposed to storm water and from which allowable non-storm water discharges were released. The SDPPP must also identify the pollutants of concern associated with those activities.*

The permit states in Part I.F.5: SDPPP Availability:

*...In accordance with Section I.7 of this permit, a copy of the SDPPP will also be made available on a public website.*

The permit states in Part I.7: Public Involvement

*(a) **Website:** Within six (6) months after the effective date of the permit, the Permittees shall establish a public website where information on that Permit, including the SDPPP, Annual Reports, Inspection Reports, DMRs, transmittal correspondence between Permittees and EPA, and other relevant data and documents, will be made available.*

The permit states in Part I.F.1.d: Summary of Potential Pollutant Sources.

*The SDPPP must identify each Site at the facility where industrial materials or activities were previously exposed to storm water and from which allowable non-storm water discharges were released. The SDPPP must also identify the pollutants of concern associated with those activities.*



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The permit states in Part I.J: Water Quality Based Effluent Limits

*Permittees must control discharges from all Sites as necessary to ensure that such discharges will not cause or contribute to a violation of applicable water quality standards.*

The Permit states in Part I.H.2: Annual Reports

*The Permittees shall submit an annual status report. This report shall include the following:*

- (a) For each SMA (or Site), a summary of the Site-specific compliance status during the report period;*
- (b) SMA and associated Outfall and Site(S) numbers/identifications;*
- (c) Monitoring results available during the reporting period;*
- (d) Identification of pollutants which exceed applicable MTAL or ATAL; ...*
- (i) Highlights of any change of compliance status from the Annual Report.*

**Findings** for Recordkeeping and Reporting

The Permittees did continue to hold their semi-annual public meetings and additionally held meetings with interested parties to discuss current activities at Sites around the facility.

**Site Discharge Pollution Prevention Plans (SDPPPs):**

The 2012 updated version of the Permittees' SDPPP was missing from the LANS/DOE website. The 2011 and 2013 updates were available.

At certain Sites, LANS/DOE personnel identified pollutants that were Site related that should be on the monitoring list. This list is included as Attachment C and is obtained from the Permittees' permit reapplication package. This information should have been identified by the Permittees in the annual SDPPP updates and Annual Reports as the Permittees were aware of the additional pollutants of concern. This additional information should have resulted in revisions to Site sampling under the Permit.

When reviewing SDPPP language for a Site from update to update, it was noted that in some cases, language describing the former activity at the Site was changed or deleted. Site descriptions are one of the ways that LANS/DOE, the public and regulatory agencies characterize a Site and the potential pollutants that could be generated. Keeping the pertinent information in the SDPPPs from year to year is important. However, if the plan is to revise Site histories, this is why all versions of the SDPPPs should be available on the website.

An example of this occurring is at DP-SMA-2.35. The 2011 SDPPP stated the following:

*SWMU 21-024(n) is a drain-line that exits Building 21-155 and discharges into DP Canyon. Building 21-155 has been a warehouse and a laboratory and contains a furnace. The furnace is believed to be a heating unit for DP East. The drain system consists of corrugated metal pipe that exits a concrete bulkhead and discharges onto a gravel road adjacent to MDA U [SWMU 21-017(a)-99]. The effluent flows north to the ditch paralleling the north perimeter road. From there, it flows east to a culvert that passes under the north perimeter road and into DP Canyon. One sample was collected directly under the opening in the ten inch drain pipe as part of the 1988 reconnaissance sampling. The analytical results indicate zinc, plutonium-239/-240 and tritium concentrations were above BVs/FVs. Oil and grease concentrations were reported above detection limits. Petroleum products are also potential contaminants because of the furnace in Building 21-155.*

The 2013 SDPPP gave the description as:

*SWMU 21-024(n) originally consisted of a CMP (corrugated metal pipe) that exited building 21-155 and an outfall on the north edge of DP Canyon. Building 21-155 was constructed in 1949 and housed a warehouse and laboratory. Three additional drainlines*

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*originating from building 21-155 (or next to building 21-155) that followed a parallel path to, and west of, the SWMU 21-024(n) drainline were found in engineering drawings and during Site visits in the early 1990s and were subsequently added to SWMU 21-024(n). Each of the parallel drainlines discharged to the same hillside as the SWMU 21-024(n) outfall. Discharges from each drainline flowed downslope to a ditch on the south side of the TA-21 perimeter road. From the ditch, the path of the effluent flowed to one of two culverts (one to the east and one to the west) that crossed under the perimeter road and emptied onto the ground surface that sloped toward DP Canyon. All four drainlines were removed in 2007.*

The information omitted in the 2013 version was all of the historical activity information that would inform potential pollutant observations. Again, this is critical information that can be used by all involved parties to assess the Sites.

While the Site maps contained in the SDPPPs were generally useful and detailed, there were a few instances where clarifications were needed. The direction of flow was not clear in some cases, and some Site features were not included that would be useful. For example, at LA-SMA-5.02, the associated SWMU was a surface disposal area where materials were also pushed over the side of the canyon. The materials were mostly construction debris from demolition activities of the former TA-01 buildings, in addition to utility boxes, piping, and miscellaneous construction debris. Aside from the SWMU area not being completely captured by the SMA sampler, there is a storm drain inlet in the parking lot at the upper end of the SWMU, which directs storm water over the eastern side of the SWMU boundary. The eastern side, outside the drainage area of the sampler, does contain soil concentrations for various metals (nickel, lead, mercury, zinc, beryllium) as well as PCBs, PAHs, and other chemicals. The influence of the storm drain is likely transporting these pollutants further down into the LA Canyon drainage and is not being treated or mitigated by the installation of BMPs or remediation activities. Additionally, because the area where this is occurring is outside the drainage area of the sampler, those pollutants are not being characterized in runoff.

Updates to SDPPPs are required annually by the permit. There was construction activity at two SMAs that were visited during this inspection. No information was included in the 2013 SDPPP update on construction related activities at Sites (specifically S-SMA-2 and CDV-SMA-1.7) and the requirements in Part I.E.5.a of the permit to restart sampling at those two SMAs. Construction began at S-SMA-2 approximately a month prior to this inspection, and construction at CDV-SMA-1.7 began shortly before the inspection as well.

For the Sites detailed in Section A of this narrative, soil sampling under the Consent Order typically occurred for many Sites in the 2009-2010 time frame. As LANS/DOE obtained these soil sampling results, updates should have been made to the SDPPPs for each of these Sites to indicate that other potential pollutants could be discharged off of the Sites. This requirement is made in the Permit in Part I.F in the Summary of Potential Pollutant Sources, which did not appear to be updated with the new soils information, and is also required to be reported to EPA and NMED in the Annual Report required by Part I.H.2.

Soils data are an example of information that is important and must be reported timely to the regulatory agencies. This would then result in important decisions on protection of water quality standards, and human health and the environment. Because of this lack of information, it is likely that these additional pollutants (metals, PAHs, and radionuclides) have been discharged into the environment without appropriate monitoring and remediation.

Silver and cadmium are inconsistently reported. Permittee representatives indicate that the contract lab they work with cannot analyze at the required MQL of 0.5 ug/L for silver. However, at some Sites, silver is reported above the TAL at the reported contract lab's reporting limit of 1.0 ug/L (such as at Pratt-SMA-1.05), but at other Sites, such as CDB-SMA-1, silver is reported below the MQL at 0.2 ug/L. The Permittees state that:

*Detected results are reported to the value of the Method Detection Limit (MDL). Non-detected results are reported to the value of the Practical Quantitation Limit (PQL), also referred to as the Low Standard. Concentrations of analytes are detected if observed between the value for the MDL and PQL and are qualified as estimated with "J". LANL is in compliance when the MQL falls between the MDL and PQL because the contracted analytical laboratories are using EPA-approved analytical methods with the same or more sensitive detectable level (DL) than MQL.*

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*Dissolved silver and cadmium analyses have been performed using ICP-MS analytical method EPA 200.8. All analyses conducted for the Individual Permit have been reported with a MDL for cadmium of 0.11 ug/L and for silver of 0.2 ug/L (see table below). These MDL values are lower than IP MQL values for these same metals. LANL is compliant with the requirement that analytical methods with the same or more sensitive detectable level (DL) than the MQL shall be used.*

Analyte	Analytical Method	Contract Lab MDL (ug/L)	Contract Lab Low Standard (ug/L)	IP MQL (ug/L) IP Part 1.C	IP MTAL (ug/L) IP Part 1.C
Cadmium, Dissolved	EPA:200.8	0.11	1.0 (on pages 167 and 426 of 790 in 11-3196.pdf)	1.0	0.6
Silver, Dissolved	EPA:200.8	0.2	1.0 (on pages 167 and 426 of 790 in 11-3196.pdf)	0.5	0.4

*The IP MQL is not reported in analytical results provided by the contracted laboratories. The lowest standard analyzed by contracted analytical laboratories for both dissolved cadmium and dissolved silver are 1.0 ug/L since the initiation of the Individual Permit. Any sample concentration that falls between the value of the MDL and Low Standard is reported as detected and the actual concentration of the analyte is reported. Instead of reporting values below the MQL as “0” or “ND”, LANL’s contracted analytical laboratories have been instructed to report the actual estimated concentration of each analyte when the concentration is between the MDL and Low Standard.*

*The Laboratory requested that the contracted laboratories change their reporting convention for results not-detected above the value of the MDL in order to be consistent with Department of Defense and Department of Energy Consolidated Quality Systems Manual for Environmental Laboratories (available at [https://doecap.oro.doe.gov/EDS\\_Public/default.aspx](https://doecap.oro.doe.gov/EDS_Public/default.aspx)). This was changed over the winter and spring of 2011/2012. In 2011, non-detected results were reported at the value of the MDL. Since 2012, non-detected results have been reported at the value of the lowest standard analyzed. This reporting convention causes the admittedly confusing situation where detected results can be reported with lower concentrations than non-detected results.*

Cadmium is reported at the MQL value, which is also not protective of NMWQCC water quality standards and is not reported as a TAL exceedance. The language in the permit allows the Permittees to use the less sensitive limit between the EPA-established MQL or the ATAL/MTAL in the permit.

Analyte	Std Value	MQL	MTAL value	Reported Value	EPA Method 200.8 MDL	EPA Method 200.9 MDL
silver*	0.5 ug/L	0.5 ug/L	0.4 ug/L	1.0 ug/L	0.005 ug/L	0.5 ug/L
cadmium*	1.0 ug/L	1.0 ug/L	0.6 ug/L	1.0 ug/L	0.01 ug/L	0.05 ug/L

\* Hardness dependent.

In Permittees’ documentation, charts show the “std value”, which is defined as “the TAL value as listed in the Permit.” This is not accurate. The Permittees’ terminology should reflect that they are using the MQL value, not the TAL value as established in the permit.

### **Section C – Operations and Maintenance – Overall Rating of Marginal**

#### **Permit Requirements** for Operations and Maintenance:

The permit requires in Part I.E.1, Confirmation Results above Target Action Levels:

*If, following installation of baseline control measures, any validated sample analytical result for a specific pollutant of concern at a particular SMA is greater than the applicable MTAL (or applicable MQL, whichever is greater) or the average of all applicable sampling results is greater than the applicable ATAL (or applicable MQL, whichever is greater), the Permittees shall conduct visual*

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*inspections for all Sites within the SMA drainage area, reevaluate the existing control measures, and initiate corrective action as soon as practicable. Such corrective action may entail the design and installation of enhanced (additional, expanded or better tailored) control measures reasonably expected to achieve compliance with target action levels identified in the Permit for all Sites within the SMA drainage area. If this type of corrective action is selected, at least two confirmation samples shall be collected (one confirmation sample shall be collected during each of at least two (2) separate measureable storm events occurring at least fifteen (15) days apart) following installation of any enhanced control.*

**Findings** for Operations and Maintenance:

The on-the-ground Site-specific BMPs that were observed during this inspection appeared to be well maintained and operational. These BMPs ranged from berms and check dams to established vegetation.

As noted in Appendix A (overview of Sites) there are 78 SMAs that showed an exceedance of TALs in baseline monitoring, but are listed as needing corrective action. These Sites have been in need of corrective action anywhere from October of 2011 to November of 2013. Sites that need corrective action are required by the Permit as detailed above to be addressed “as soon as practicable.” Although there is no specific timeframe for compliance with this requirement, it does not appear that delaying corrective action for three years is compliant with the requirement to implement corrective action as soon as practicable.

For example, it appears that M-SMA-4 collected a baseline sample in December of 2010. TAL exceedances were for gross alpha, radium 226+228, PCBs and copper. As listed in the permit reapplication materials submitted to EPA and NMED in March 2014, the corrective action response listed is that corrective action is initiated. No more information is given as to the meaning of “initiated”, whether that is planning or whether controls have been implemented on the ground. The Site description given in the latest SDPPP update is that for the five SWMUs/AOCs associated with this SMA, three have obtained CoCs from the NMED Hazardous Waste Bureau, and two are awaiting corrective action. The documentation also states that no exposure certification is being considered for one of the remaining SWMUs in 2014. No additional samples since the baseline samples collected in December of 2010 have been collected at this Site.

Appendix H of this inspection report is a table showing the corrective action status of Sites as of December 2013.

**Section D – Self-Monitoring – Overall Rating of Unsatisfactory**

**Permit Requirements** for Self-Monitoring

The permit states in Part I.D.2: Sampling Locations:

*All samples taken for purposes of confirmation monitoring shall be taken in compliance with the monitoring requirements specified below at SMAs specified in Appendix A to the permit. Instead of monitoring at each individual Site, the Permittees may, when appropriate based on drainage patterns for the affected Sites, monitor two or more Sites in conjunction at an associated SMA... SMA locations are based on reasonable site accessibility for sampling purposes and the Permittees’ best judgment to ensure that samples taken at a particular point will be representative of discharges from Sites in the drainage area... Permittees may move a sampler to make minor adjustments that arise due to changes in natural conditions, unexpected events or as otherwise necessary to ensure that the sample location is representative. Such changes can include minor updates in Site boundaries, changes in storm water drainage patterns, logistical or security adjustment. Any such movement of a sampler will be documented in the annual SDPPP, and be made available for public review.*

The permit states in Part I.E.5(c):

*...if a Site for which monitoring has ceased, later exhibits evidence of a discharge of contaminated runoff, or conditions that could lead to a discharge of contaminated runoff, ...or if monitoring data (from the facility, State or local agency), shows an exceedance of applicable target action levels, the Permittees shall initiate appropriate actions to correct the problems within*

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*thirty (30) days of being made aware of such information. After completion of any required corrective actions, at least two confirmation samples shall be taken.*

The permit states in Part I.E. and Part I.E.2:

*I.E: As specifically described below, if confirmation monitoring shows target action levels are not being met at a particular Site, Permittees must take corrective action through installation of measures reasonable expected to: (i) meet applicable target action levels at that Site; (ii) achieve total retention of storm water discharges from the Site; (iii) totally eliminate exposure of pollutants to stormwater at the Site; or through (iv) a demonstration that the Site has achieved RCRA "corrective action complete without controls/corrective action complete without controls/corrective action complete with controls" status or a Certificate of Completion under NMED's Consent Order.*

*I.E.2: Permittees must certify to EPA, pursuant to 40 C.F.R. Section 122.22(b), completion of corrective action at all Sites within the deadlines established under Section E.4 below. Except as provided in subsection E.3 below, "Completion of Corrective Action" under this Permit shall mean:*

- (a) Analytical results from confirmation sampling show pollutant concentrations for all pollutants of concern at the Site to be at or below applicable target action levels; or*
- (b) Control measures that totally retain and prevent the discharge of storm water have been installed at the Site; or*
- (c) Control measures that totally eliminate exposure of pollutants to stormwater have been installed at the Site; or*
- (d) The Site has achieved RCRA "corrective action complete without controls/corrective action complete with controls" status or a Certificate of Completion under NMED's Consent Order.*

The permit also states in Part I.D and Part I.D.1(a) & (b):

*The permittees shall monitor storm water discharges from Sites at specified sampling points known at Site Monitoring Areas (SMAs) against applicable target action levels. The Permittees shall perform confirmation monitoring as detailed below following installation in accordance with Permittees' SDPPP of each site-specific control measures, including any enhanced or additional control measure installed as corrective action. Pollutants of concern to be monitored are specified in Appendix B.*

*Initial monitoring requirements and frequency of sampling for each pollutant of concern following installation and implementation of baseline control measures vary on a site-by-site basis as specified below:*

- (a) For Sites at which baseline control measure to address the non-numeric effluent limits in Part I.A of the permit have already been installed and implemented prior to the effective date of this permit, the Permittees shall collect two or more confirmation samples. One (1) confirmation sample shall be collected during each of at least two (2) separate measureable storm events occurring at least fifteen (15) days apart and within one (1) year after the effective date of this Permit at associated SMAs.*
- (b) For Sites at which baseline controls to address the non-numeric effluent limits in Part I.A of the Permit are installed with six (6) months of the effective date of this permit, the Permittees shall collect two or more confirmation samples. One (1) confirmation sample shall be collected during each of at least two (2) separate measureable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective dates of this Permit at associated SMAs.*

Additionally, the permit requires in Part I.E.1(a):

*If, following installation of baseline control measures, any validated sample analytical result for a specific pollutant of concern at a particular SMA is greater than the applicable MTAL (or applicable MQL, whichever is greater) or the average of all applicable sampling results is greater than the applicable ATAL (or applicable MQL, whichever is greater), the Permittees shall conduct visual inspections for all Sites within the SMA drainage area, reevaluate the existing control measures, and initiate corrective action as soon as practicable. Such corrective action may entail the design and installation of enhanced (additional, expanded or better tailored) control measures reasonably expected to achieve compliance with target action levels identified in the Permit for all Sites within the SMA drainage area. If this type of corrective action is selected, at least two confirmation samples shall be collected*

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during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart following installation of any enhanced control. If either validated confirmation sample result for any specific pollutant of concern exceeds applicable target action levels, the Permittees shall conduct visual inspections for all Sites within the SMA drainage area, reevaluate the existing control measures, and initiate further measures to achieve completion of corrective action under Sections E.2 or 3 as soon as possible.

The permit states in Part I.E.5.f: Monitoring Location Change

*If the location of any SMA for any Site or Sites has been changed, confirmation samples must be analyzed for all pollutants of concern for that Site or Sites, as listed in Appendix B of the Permit.*

### **Findings** for Self-Monitoring

#### **No Sample Collected:**

There are approximately 110 SMAs for which no sample has been collected. The current permit requires that a sample is analyzed when there is enough volume to complete all required analyses, and if it has been 15 days since the prior rain event. In many cases, the BMPs installed at a Site (including large berms and/or retention basins) do not allow flow to pass to the sampler location.

#### **Soil Sampling and Lack of Updates to SDPPP and Sampling Requirements:**

The permit states, as cited above, in Part I.E.5.c, that if there is evidence that a Site exhibits conditions that could lead to a discharge of contaminated runoff, the Permittees are required to initiate corrective action within 30 days of receiving notice of those conditions. As noted earlier in this report, the Permittees have conducted extensive soil sampling in accordance with their RCRA permit and this information informs the affected area of the Sites covered under this Clean Water Act permit. Much of the soil sampling was conducted for Investigation Reports in 2009-2010. It appears that the soil sampling results should have informed the Permittees' decisions on what the affected areas of these Sites were, and the Permittees should have taken action within 30 days to correct sampler locations and ensure the representativeness of those SMA locations.

The permit states in Part I.E.5.f that when an SMA sampler location changes, regardless of whether it is a major or a minor change, that the Permittees must collect confirmation samples for all pollutants of concern at the Site. According to the permittees' annual reports for 2012 and 2013, the following SMAs had minor changes in the associated SMA location. No confirmation sampling of the Sites listed below appears to have occurred.

#### 2012 Annual Report:

**Table 7-1**  
**Minor Sampler Location Adjustments**

SMA	New Station Name
2M-SMA-1.45	2M-SMA-1.45 at SS123220
2M-SMA-2	2M-SMA-2 at SS123221
A-SMA-2.7	A-SMA-2.7 at SS120211
DP-SMA-3	DP-SMA-3 at SS121907
LA-SMA-0.85	LA-SMA-0.85 at SS121043
LA-SMA-1	LA-SMA-1 at SS121044
M-SMA-1	M-SMA-1 at SS121238
M-SMA-10.01	M-SMA-10.01 at SS121235
M-SMA-7.9	M-SMA-7.9 at SS121237
PT-SMA-1	PT-SMA-1 at SS124815
PT-SMA-2.01	PT-SMA-2.01 at SS124816
S-SMA-1.1	S-SMA-1.1 at SS121634
W-SMA-14.1	W-SMA-14.1 at SS123937
W-SMA-8.71	W-SMA-8.71 at SS123938

#### 2013 Annual Report

**Table 7-1**  
**Minor Sampler Location Adjustments**

SMA	New Station Name	Watershed
LA-SMA-1.25	LA-SMA-1.25 at SS131045	Los Alamos and Pueblo
LA-SMA-5.2	LA-SMA-5.2 at SS131046	Los Alamos and Pueblo
P-SMA-2.2	P-SMA-2.2 at SS130804	Los Alamos and Pueblo
PJ-SMA-10	PJ-SMA-10 at SS132340	Pajarito
PJ-SMA-13.7	PJ-SMA-13.7 at SS132339	Pajarito
STRM-SMA-1.5	STRM-SMA-1.5 at SS133007	Pajarito
CDV-SMA-1.4	CDV-SMA-1.4 at SS130425	Water and Cañon de Valle
CDV-SMA-4	CDV-SMA-4 at SS130424	Water and Cañon de Valle
CDV-SMA-6.02	CDV-SMA-6.02 at SS130423	Water and Cañon de Valle
PT-SMA-1.7	PT-SMA-1.7 at SS134817	Water and Cañon de Valle
W-SMA-1	W-SMA-1 at SS133939	Water and Cañon de Valle
W-SMA-6	W-SMA-6 at SS133940	Water and Cañon de Valle

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For enhanced control monitoring, the permit states that two confirmation samples must be collected if enhanced control measures are installed as part of a corrective action remedy. There is no time frame established in the permit to obtain these two samples. The permit does state at Part I.E.5.d that if in any situation where two confirmation samples are required and only one can be obtained, then compliance will be judged on the single sample, but again, there is no time frame established in Part I.E.1.a.

During the inspection, NMED noted that some sampler locations – specifically the inlet and actuator to the sampler – were in such a location that some storm flows would not be sampled. For example, at CDB-SMA-1, there was a channel evidenced by erosion that routed flow around the sampler inlet (please see Appendix E for the photos showing this situation). Permittees' representatives indicated that they felt they were unable to move the sampler inlet location (at this and other Sites) because it would require a modification to the permit. However, as the permit states in Part I.D.2 above, minor changes are allowed with notification to EPA that they are occurring, and followed by documentation in the SDPPP. Additionally, the Permittees document in the 2013 Annual Report that minor changes occurred at sampling locations (12 SMAs) and minor changes to Site boundaries did occur at 81 Sites.

Additional Sampling Information:

Additional sampling data available through the Intellus database was collected by the NMED DOE Oversight Bureau. DOE-OB monitored at a few locations that were slightly downstream of LANS/DOE's SMA locations (please see Appendix C for maps showing NMED DOE-OB's sampling locations in relation to LANS/DOE's sampling locations) and did obtain some data that indicated that the contamination had moved past (down slope from) the location of the SWMU boundary. These Sites are discussed below:

<b>SMA</b>	<b>Site Number</b>	<b>CoC with or without Controls</b>	<b>LANS/DOE Sampling/TAL Exceedances; None means no sampling has occurred (Ratio exceedances to TAL)</b>	<b>Notes</b>
B-SMA-1	00-011(d)	CoC with Controls (5-7-13) – NMED HWB indicates that stormwater sampling under the IP is still required.	Gross alpha (8.4); used MQL for Ag of 1.0 ug/L	DOE-OB sampled below LANS/DOE's sampler: exceedance at old FFCA location of Thallium (1.01) on 6-19-13.
LA-SMA-3.1	01-001(e), 01-003(a)	CoC with Controls (Sept 2010) - NMED HWB indicates that stormwater sampling under the IP is still required.	None (LANS/DOE has collected partial samples here).	DOE-OB has samples from five events. Exceedances: PCBs (809). Partial samples have been collected here.
LA-SMA-5.02	01-003(e)	CoC with Controls (9-10-10) - NMED HWB indicates that stormwater sampling under the IP is still required.	Copper (1.14), PCBs (94.26)	LANS/DOE certified corrective action complete at this Site on November 29, 2012. DOE-OB sampling also showed an exceedance of PCBs (2 of 3



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ACID-SMA-2	45-001, 45-002, 45-004, 01-002(b)-00	CoC without Controls (2-2013)	Al (1.05), Gross alpha (2.7), PCBs (128.44)	samples). DOE-OB sampling shows exceedances for Al, Thallium, Zn, Hg, PCBs
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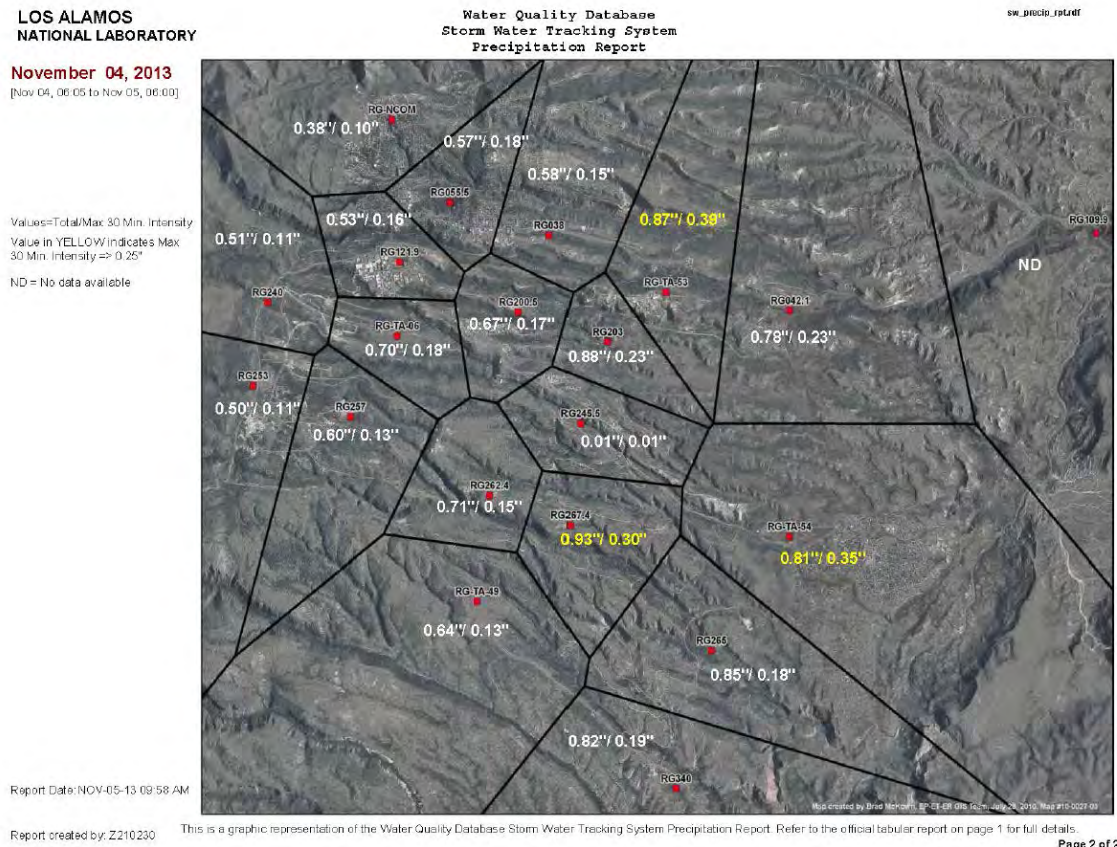
For these four Sites, the NMED DOE-OB samplers appear to be more representative of the runoff from the Sites and affected area when taking available soil sampling data into account. The differences between the TAL exceedances indicate that the Permittees must reevaluate the representativeness of their current sampling location and should use all available information to inform that assessment.

Sample Processing Lab – Temperature:

During the previous NMED inspection in 2012, one of the monitoring-related findings was that thermometer calibration in the sample storage refrigerators was not occurring. During this inspection, it was confirmed that thermometers were being properly calibrated against a NIST-certified thermometer. LANS/DOE staff also indicated that the refrigerators were in need of replacement and were working on securing new refrigerators.

Structure of Gaging Network to Respond to Rain Events:

LANS/DOE's procedure for stormwater sample collection is dependent on an extensive rain gauge monitoring network. The Lab is separated into polygons (shown in the photo, below), each of which contains a gaging station.





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The gauging stations are equipped with telemetry. When a rain event occurs that triggers the required measurable storm event (0.25 inches within 30 minutes), a post-storm inspection is conducted, and the sampler is checked at that time for sample volume. According to Permittees', the LANS staff conducting the inspections typically respond within 3 days of the triggering rain event. When an appropriate sample volume is collected, which is enough sample volume to run all of the required analyses, LANS staff then collects and brings the sample to the sample processing lab at the Pueblo Complex. When only an insufficient volume is collected for all analytes, no analysis is done.

Dissolved Metals and Sample Retrieval Procedures:

Monitoring requirements under the permit mandate assessment of Sites for dissolved metals concentrations in accordance with the TALs designated in the permit. The approved method for dissolved metals analysis in 40 CFR Part 136.3 that LANS/DOE utilizes is EPA Method 200.8. The method states that "for the determination of dissolved elements, the sample must be filtered through a 0.45µm pore diameter membrane filter at the time of collection or as soon thereafter as practically possible." In footnote 7 in Table II of 40 CFR Part 136.3, EPA notes "For dissolved metals, filter grab samples within 15 minutes of collection and before adding preservatives." LANS/DOE staff indicated that because there is approximately three days' time before field staff retrieves a sample after a triggering event, in-line filtering on ISCO collection devices was attempted. However, according to LANS/DOE staff, the filter clogged. As a result, samples are now collected and returned to the sample processing lab where they are then filtered and preserved, and sent offsite to the contract laboratory for analysis. With the delay in filtration of the sample, dissolved and suspended forms of the metals could change, therefore resulting in an inaccurate portrayal of that storm event's impact on the Site. At one Site, S-SMA-3.53, LANS staff did not retrieve the sample collected in August 2011 for eight days, at which time it was cooled and preserved. NMED SWQB does recognize that due to the large number of SMAs monitored under this permit, getting samples filtered and processed within 15 minutes is extremely unlikely, however, eight days is excessive. Excessive delays in analysis call the quality of the data into question.

Information provided at the final exit interview on November 5, 2014 indicated that sampling hold time exceedances had improved since 2011. The table provided to NMED is provided here for reference:

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Year	SMA	Sample Date	Prep Date	Analysis Holding Time (Days)	Required Analysis Holding Time (Days)	Exceeds (Y/N)	Appendix Table	Notes
2011	R-SMA-1.95	8/19/2011	*	*	7	Y	C-5	
	LA-SMA-1.25	8/28/2011	*	*	14	Y	C-5	
	LA-SMA-10.12	9/1/2011	*	*	14	Y	C-5	
	S-SMA-0.25	7/28/2011	*	*	7	Y	C-5	
	S-SMA-1.1	9/14/2011	*	*	14	Y	C-5	
	S-SMA-3.53	8/4/2011	*	*	7	Y	C-5	
	S-SMA-3.6	8/13/2011	*	*	7	Y	C-5	
	S-SMA-6	8/19/2011	*	*	7/14	Y	C-5	
	CDB-SMA-0.25	9/1/2011	*	*	7	Y	C-5	
	M-SMA-1	8/19/2011	*	*	14	Y	C-5	
	M-SMA-10.3	8/19/2011	*	*	14	Y	C-5	
	M-SMA-4	8/19/2011	*	*	14	Y	C-5	
	2M-SMA-1.67	9/15/2011	*	*	7	Y	C-5	
	2M-SMA-2	9/4/2011	*	*	14	Y	C-5	
	2M-SMA-2.2	9/4/2011	*	*	14	Y	C-5	
	PJ-SMA-16	7/30/2011	*	*	7	Y	C-5	
	PJ-SMA-3.05	8/19/2011	*	*	14	Y	C-5	
	STRM-SMA-4.2	9/9/2011	*	*	14	Y	C-5	
	STRM-SMA5.05	8/21/2011	*	*	14	Y	C-5	
	CDV-SMA-2.41	8/21/2011	*	*	14	Y	C-5	

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	CDV-SMA-2.5	9/1/2011	*	*	7	Y	C-5	
	CDV-SMA-3	8/21/2011	*	*	7	Y	C-5	
	CDV-SMA-6.02	8/13/2011	*	*	7	Y	C-5	
	PT-SMA-0.5	9/1/2011	*	*	7	Y	C-5	
	PT-SMA-1	9/1/2011	*	*	7	Y	C-5	
	PT-SMA-2.01	8/18/2011	*	*	7	Y	C-5	
	W-SMA-1	9/9/2011	*	*	14	Y	C-5	
	W-SMA-1.5	9/9/2011	*	*	14	Y	C-5	
	W-SMA-10	8/21/2011	*	*	14	Y	C-5	
	W-SMA-14.1	7/25/2011	*	*	7	Y	C-5	
	W-SMA-14.1	8/18/2011	*	*	7	Y	C-5	
	W-SMA-2.05	8/21/2011	*	*	14	Y	C-5	
	W-SMA-9.9	8/21/2011	*	*	14	Y	C-5	
	A-SMA-2.7	9/4/2011	*	*	7	Y	C-5	
	CHQ-SMA-1.02	8/21/2011	*	*	14	Y	C-5	
2012	W-SMA-5	7/3/2012	7/12/2012	9	7	Y	B-6	LANL entered Stage III Fire Restrictions on 7/3, field work placed on hold until site assessments could be completed. Sample collected on 7/10, shipped from LANL with 24 hr delivery on 7/11, lab extraction on 7/12. <b>Corrective action initiated.</b>
2013	M-SMA-10	6/30/2013	7/15/2013	15	14	Y	B-5	Sample shipped from LANL with 24 hr delivery on Wed 7/10. Lab failed to extract within required time. <b>Corrective action initiated.</b>
	3M-SMA-0.4	7/12/2013	7/23/2013	11	7	Y	B-6	Sample shipped from LANL with 24 hr delivery on Th 7/18. Lab failed to extract within required time. <b>Corrective action initiated.</b>
	S-SMA-3.6	7/2/2013	7/11/2013	9	7	Y	B-6	4 <sup>th</sup> of July holiday + weekend. Sample shipped from LANL with 24 hr delivery on Tue 7/9. <b>Corrective action initiated.</b>
	CDV-SMA-1.2	9/12/2013	9/20/2013	8	7	Y	B-6	Due to heavy rains and flooding all field work was stopped 9/13 through 9/17 until safety assessments could be completed. Sample collected from field on 9/18 and shipped from LANL with 24 hr delivery on 9/19.

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	S-SMA-3.95	9/13/2013	9/26/2013	13	7	Y	B-6	Due to heavy rains and flooding all field work was stopped 9/13 through 9/17 until safety assessments could be completed. Sample collected from field on 9/19 and shipped from LANL with 24 hr delivery on 9/19. Lab delayed extraction. <b>Corrective action initiated.</b>
	W-SMA-8	9/12/2013	9/26/2013	14	7	Y	B-6	Due to heavy rains and flooding all field work was stopped 9/13 through 9/17 until safety assessments could be completed. Sample collected from field on 9/18 and shipped from LANL with 24 hr delivery on 9/19. Lab delayed extraction. <b>Enhanced controls installed.</b>
	W-SMA-8.7	9/12/2013	9/20/2013	8	7	Y	B-6	Due to heavy rains and flooding all field work was stopped 9/13 through 9/17 until safety assessments could be completed. Sample collected from field on 9/18 and shipped from LANL with 24 hr delivery on 9/19. <b>Corrective action sampling.</b>
2014	T-SMA-6.8	7/31/2014	8/14/2014	17	14	Y	NA	Collected from field on 8/12, shipped to lab on 8/13. <b>Corrective action initiated.</b>
	S-SMA-0.25	7/15/2014	7/23/2013	8	7	Y	NA	Corrective action complete, characterization sample
	S-SMA-0.25	8/22/2014	9/9/2014	18	7	Y	NA	Corrective action complete, characterization sample

\*not in Annual table

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No Further Monitoring After Receipt of CoC

There are multiple Sites under the permit that, following the installation of enhanced controls, have been certified as Corrective Action Complete. These Sites have not collected confirmatory storm water samples, but rather have obtained a Certificate of Completion under NMED Hazardous Waste Bureau's Consent Order. In discussions with LANS/DOE staff at the time of this inspection, it appears that an interpretation has been made by the Permittees that when a Site does receive a CoC from NMED's Hazardous Waste Bureau, that corrective action is complete and that no more sampling needs to occur. However, NMED does not believe the permit intended to reflect that stormwater sampling could be terminated once a certificate of completion document was obtained.

When a baseline monitoring sample at a Site exceeds TALs, the permit specifically requires that enhanced controls meant to better address the conditions at the Site, and samples to confirm that those controls are working are collected. However, the Sites/SMAs listed below have been documented by the Permittees as having achieved Corrective Action Complete under this permit due to the receipt of a CoC from the NMED Hazardous Waste Bureau. The permit also requires that corrective action in response to a TAL exceedance is initiated within 30 days. There was no documentation available to show that this was achieved. As shown for the Sites in the table below, corrective action was not initiated within the 30 day deadline.

LANS/DOE has not provided any further documentation at the Sites that have obtained a Certificate of Completion to illustrate that the soil concentrations of pollutants at the Site are protective of water quality standards.

Additionally, many of the CoCs obtained for these Sites were issued as a Certificate of Completion WITH controls. These CoCs specifically require LANS/DOE to continue monitoring stormwater under the Individual Permit as a control under the RCRA process (indicated in the table below as “\*”):

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<b>SMA Number</b>	<b>Site Number</b>	<b>Date Baseline Sample Collected</b>	<b>Date Corrective Action Initiated</b>	<b>Date of Completion of Corrective Action</b>	<b>Date of CoC</b>	<b>Sampling Status</b>	<b>TAL Exceedances</b>	<b>Sampler On/Off<sup>†</sup></b>
<b>R-SMA-0.5</b>	C-00-020	8-3-2012	9-12-2012	11-29-12	5-16-12	No ECM	gross α	Off
<b>ACID-SMA-2</b>	45-001, 45-002, 45-004	8-19-2011	11-3-2011	3-7-13	2-22-13	No ECM	PCB, gross α, Al	Off
<b>P-SMA-0.3</b>	0-018(b)	7-25-2013	9-5-2013	9-16-13	1-14-11	No ECM	gross α, Hg, Se, Ra 226+228	Off
<b>LA-SMA-1.1</b>	43-001(b2)	8-19-2011	10-11-2011	11-29-12	9-10-10*	No ECM	gross α	Off
<b>LA-SMA-2.3</b>	01-001(b)	8-21-2011	5-1-2012	11-29-12	9-10-10*	No ECM	gross α	Off
<b>LA-SMA-5.02</b>	01-003(e)	8-19-2011	10-25-2011	11-29-12	9-10-10*	No ECM	PCB, Cu	Off
<b>LA-SMA-5.33</b>	32-004	8-21-2011	4-30-2012	3-7-13	12-28-12*	No ECM	gross α	Off
<b>LA-SMA-5.91</b>	21-023(c)	9-7-2011	10-31-2011	11-29-12	6-3-11*	No ECM	gross α	Off
<b>S-SMA-2</b>	03-056(c)	8-13-2011	10-20-2011	11-29-12	2-28-11*	No ECM	PCB, Zn, Cu	Off
<b>S-SMA-4.1</b>	53-014	9-1-2011	11-2-2011	8-20-13	7-31-13	No ECM	PCB	Off
<b>CDB-SMA-1</b>	C-46-001	9-7-2011	4-30-2012	11-29-12	7-13-12	No ECM	gross α, PCB, Cu, Al	On
<b>M-SMA-4</b>	48-007(a), 48-007(d), 48-010	8-19-2011	10-31-2011	11-29-12	9-7-10*	No ECM	gross α, Ra 226+228, Cu	Off
<b>M-SMA-10.3</b>	35-014(e2), 35-016(i)	8-19-2011	10-24-2011	10-30-13	9-27-13*	No ECM	PCB, Zn, Al, Cu	Off
<b>T-SMA-1</b>	50-009	8-15-2011	10-21-2011	10-31-13	Complete Cover cert	No ECM	PCB, Zn, Cu	On
<b>PJ-SMA-20</b>	54-017	7-29-2011	5-1-2012	10-25-13	Complete Cover cert	No ECM	Cu, Al	Off
<b>CDV-SMA-1.4</b>	16-030(c)	9-10-2012	10-18-2012	11-29-12	1-23-08	No ECM	Cn, Ag	On
<b>A-SMA-2.7</b>	39-002(c)	9-4-2011	10-27-2011	11-29-12	4-6-10	No ECM	gross α, Cu	On

<sup>†</sup> Please see Appendix I for LANS/DOE's explanation of sampler rationale and confirmation of which samplers are active/inactive.

Because of the written requirement under the Certificate of Completion to continue monitoring in accordance with the NPDES permit, a decision to discontinue monitoring appears to also create an issue with the CoC under the Consent Order.

#### Gross Alpha

LANS/DOE's assessment of the TAL in the permit for adjusted gross alpha has been to monitor for gross alpha due to the cost of the additional monitoring for Radium 226+228 and Uranium. Permittee representatives also state that the adjustment would not





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requires that PCBs are collected in a glass container with a fluoropolymer lined cap. The sample was collected in a 1 L glass bottle and was cooled accordingly.

Results for benzo(a)pyrene and hexachlorobenzene are significantly above the ATAL listed in the permit. The documentation in the SDPPP indicates that the “std value” used to determine compliance in these cases was 5 ug/L. LANS/DOE explains in the SDPPP introduction that the “std value” is the TAL value as listed in the permit.

This characterization is not entirely correct, as the ATAL is much lower. The value substituted in this case is the MQL listed by EPA. This information is summarized in the table below.

<b>Analyte</b>	<b>Std Value</b>	<b>MQL</b>	<b>ATAL value</b>	<b>Reported Value</b>	<b>EPA Method 625 MDL</b>	<b>EPA Method 610 MDL</b>
<b>benzo(a)pyrene</b>	5 ug/L	5 ug/L	0.18 ug/L	0.3 ug/L	2.5 ug/L	0.0023 ug/L
<b>hexachlorobenzene</b>	5 ug/L	5 ug/L	0.0029 ug/L	3 ug/L	1.9 ug/L	0.05 ug/L

Permit language at Part I.C allows the permittees to use the higher of the MQL or the MTAL or ATAL for assessment of benchmarks. EPA established a list of MQLs in the permit, but these MQLs are not protective of NM WQCC water quality standards. As seen in the discussion above, pollutants are being discharged from the Sites in excess of the water quality standards, and therefore could be causing or contributing to a violation of those standards. In addition, there are methods approved under 40 CFR Part 136 that do have more sensitive MDLs as listed in the table above.

EPA recently finalized the Sufficiently Sensitive Rule, which is effective September 18, 2014. This rule requires that any analysis done in accordance with an NPDES permit must be EPA-approved and capable of detecting and measuring the pollutants at, or below, the applicable water quality criteria or permit limits. To do this, EPA modified existing regulations applying to permit applications, compliance monitoring and analytical methods. These changes are contained in 40 CFR Part 136 and 40 CFR Chapter I, Subchapters N and O.

#### **Section F – Laboratory – Overall Rating of Marginal**

##### **Permit Requirements** for Laboratory

The permit requires in Part III.C.5.a:

*Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit or approved by the Regional Administrator.*

##### **Findings** for Laboratory

DOE/LANS uses GEL Laboratories out of South Carolina to perform their analytical analyses on their behalf. From the review of the data package provided as part of this inspection, it appears that GEL has adequate QA/QC procedures. All QC fell within appropriate recovery ranges.

For Radium-226, GEL is using EPA Method 904.0, which is not a 40 CFR Part 136 approved method. GEL is using EPA Method 903.1 for analysis of Radium-228. EPA Method 903.1 does also allow for analysis of Radium-226. It is unclear why the Permittees decided to use a separate method for analysis of Radium-226 that is not approved for NPDES analyses.

LANL also runs its own data verification program. The data verification program ensures that the data received by LANS/DOE from the contract lab meets the Permittees’ needs.

## **Section G – Effluent/Receiving Waters – Overall Rating of Unsatisfactory**

### **Permit Requirements** for Effluent/Receiving Waters

The permit requires in Part I.J: Water Quality Based Effluent Limits

*Permittees must control discharges from all Sites as necessary to ensure that such discharges will not cause or contribute to a violation of applicable water quality standards.*

### **Findings** for Effluent/Receiving Waters:

Baseline monitoring for Sites show that there were many exceedances of applicable TALs. Because corrective action was and continues to be delayed on many Sites, these issues are not resolved. Additionally, the interpretation by the Permittees that the receipt of a CoC immediately results in the need for no further monitoring of the Site results in the delay of needed controls at these Sites. Pollutants could then continue to be carried downstream.

### **Additional Concerns:**

The Permittees use their laboratory-wide meteorological gauging system to determine when a significant rain event has occurred (0.25 inches within 30 minutes) and then use that data to determine when an erosion/BMP inspection is required. However, when LANS staff conducts these inspections, there is no documentation that staff are checking on the samplers associated with the SMA. Separate sampler inspections are conducted. It appears that it would be a much more efficient use of the Lab's resources to also check on the sampler while present for other purposes.

### **Decision-making to Turn Samplers On or Off**

The only instance where the permit clearly allows the Permittees to turn off a sampler would be in the 15 day period after collection of a compliance sample.

The Permittees state in internal documents that they will remove a sampler from a SMA if they have received a CoC from NMED Hazardous Waste Bureau for all Sites within a SMA. If that SMA still has not collected confirmation samples after installed enhanced controls, for example, then there is no surface water confirmation that discharges from the Site are meeting TALs.

For example, the Permittees collected one sample at ACID-SMA-2 on August 19, 2011. There have been no additional samples collected here and there was no sampler present at the time of this inspection. The Permittees did not provide sufficient justification (e.g., dates of sampler removal versus potential subsequent sampling events) for only one sampling event to occur at this SMA. This also occurred at other Sites, such as ACID-SMA-1.05.

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List of Appendices:

Appendix A:	NMED Spreadsheet showing status of each Site as of December 2013
Appendix B:	Additional pollutants from permit reapplication materials
Appendix C:	Maps comparing LANS sampling locations at SMAs to NMED DOE-OB locations
Appendix D:	Soil data maps for all Sites visited during this inspection
Appendix E:	Photodocumentation – photos taken by LANS staff and additional notes provided by NMED SWQB
Appendix F:	Example Certificate of Completion with Controls letter issued by NMED Hazardous Waste Bureau
Appendix G:	LANS/DOE Report on Gross Alpha
Appendix H:	Corrective action status of Sites under this permit
Appendix I:	LANS follow-up documentation of sampler shut-off rationale

For clarification, NMED modified one item in the CEI. There was a site mix-up in the report – the site referred to as CDB-SMA-0.55 should have been CDB-SMA-1. The site name was updated on page 64.